I: Karsten--107-108 (1916-18) 1935 Jivaro
116, 411 (1928-29)

"The Jibaros moreover exhibit their industrial art in the way in which they make their weapons. Of weapons used for attack the lance (nańki) is the most important, or was so before the Indians learnt to know the firearms of the whites. These lances, like the principal weapon of defence, the shield (tandaŕa), will be mentioned again in connection with the [108] Indian wars and I shall therefore not deal with them more closely here. I only add that formerly the lances were thrown by means of a special propellant made of a kind of cane called waćhi. This object is now never used and hardly known to the majority of the present-day Jibaros. Nowadays they always throw their lances without the aid of any instrument with the right hand, showing thereby remarkable dexterity. Ordinary bows and arrows of the kind used by most other South American Indians, are entirely unknown both to the Jibaros and the Canelos Indians.

The principal hunting weapon of the Indians is the blowgun (uḿi, in the Quichua language pucuña) which is made with very great care. The making of blowguns has become a special industry which is developed among only a few Jibaro tribes, and in these is followed by only a few individuals. Thus I myself found that only the tribe at the Arapicos and the Achuares at the central Pastaza were makers of blowguns, with which a trade was carried on with other tribes."

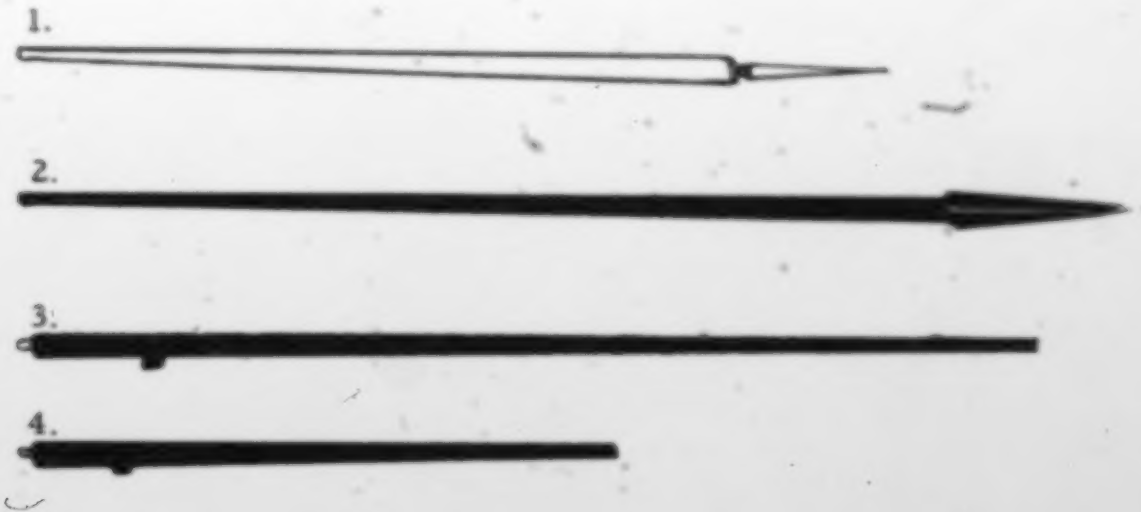

Fig. 1.

1. Lance with shaft of yukaipi and head of jaguar's bone.
2. An ordinary Chonta lance.
3. A blowgun.
4. Small blowgun used by boys.

1: Karsten--143 [2] (1916-18) 1935 Jivaro
116, 224, 411 (1928-29)

"Besides firearms, which are now known to most tribes, the lance and the blowgun are the most important hunting implements of the Ecuadorian Indians. The lance is used for killing big game like the tapir, the wild hog, and the deer, as well as beasts like the jaguar and the bear. With the blowgun and poisoned arrows the Indians hunt birds, monkeys, and other smaller quadrupeds.

For hunting big game and smaller animals the Indians commonly use dogs of a special mixed race which are bred with great care. This is particularly the case with the Jibaros, who are in the habit of making a great feast in honour of their dogs, called 'the feast of the dogs', by which strength and ability for the tracing and pursuing of the game are supposed to be imparted to them."

1: Karsten--156-157 (1916-18) 1935 Jivaro-1
116, 411 (1928-29)

"Some words may be added as to the arrows used for the poison and the blowgun with which they are shot off. The arrows bear no similarity to the ordinary long arrows known from most South American tribes and let off with a bow, a type of weapon entirely unknown to the Jibaros. The arrow or dart is a long thin stick carved out of the hard wood of the chonta palm and somewhat resembling a knitting-needle.

The blowgun, called pucúna by the Quichua-speaking Canelos Indians and úmi by the Jibaros, is about 2 1/2 to 3 metres in length and round like a musket-barrel, although a little thicker. Its making requires great skill and, as I have stated before, it is only manufactured by a few Jibaro tribes, the rest obtaining it by exchange. The Canelos Indians, although they make the poison themselves, do not make the blowguns, but buy them either from the Achuares on the Pastaza or from the Jibaro tribe living on the Arapicos. The blowgun is made of the hard chonta wood, and usually of that particularly strong chonta cultivated by the Indians --the Guilielma species--which also bears the much appreciated contaruru fruit. The blowgun consists of two halves, which are carved separately and then joined together by strips of bast. Lastly the tube is covered with a layer of black wax (sekáta) obtained from wild bees, and carefully polished with so much art and skill that it would be impossible for an uninitiated person to know that it consists of two different pieces. The inner channel through which the dart runs, is 8 to 10 mm. [157] in diameter. This bore is formed by each half being rubbed with a

long and perfectly even chonta stick of the same size as the channel desired. The end from which the dart is blown out is somewhat thicker than the opposite end and has a mouth-piece about 4 cm. long, made of the leg-bone of the jaguar or the deer; any other animal's bone would not do. The jaguar and the deer are to the Jibaros 'demoniacal' animals and their bones are supposed to have some mysterious 'poison' properties. Into this mouth-piece the poisoned dart is placed when the Indian wants to blow it out. About 20 cm. from this mouth-piece there is a small knob of black wax, which serves as a sight when the Indian shoots.

The making of a blowgun is said to require about two months and the work can only be done gradually. The chonta wood must be perfectly dry before the channel can be bored, otherwise there is always a danger of the wooden pieces warping, in which case the channel may become crooked and the whole weapon quite useless. Great care is considered particularly necessary when the channel is bored in the 'gun', which takes eight to ten days. It is especially prescribed that during these days the maker of the blowgun must not cohabit with his wife, lest the channel of the blowgun become crooked.

The dart (tsinsáka) is 25 to 27 cm. long and is carved of the hard and even wood of certain palms. The Jibaros told me five different palms from the wood of which the darts can be carved. The best of these is the ináyu palm. The wood of these palms, and especially of this last, is believed to possess certain 'poison' properties and

therefore to be the proper material for poisoned arrows. The náyu palm (Maximiliana regia) however is rare in the country of the Jibaros proper. On the other hand, it is quite common in the region of Canelos whence the Achuares on the Pastaza, for instance, obtain it by exchange."

1: Karsten--157-158 (1916-18) 1935 Jivaro-1
116, 224, 411 (1928-29)

"When the Indian wants to go out hunting he prepares a number of poisoned arrows. The night before starting, their points are smeared with poison to a length of 2 to 3 cm. and the arrows are then stuck into the earth round the fire so that the poison may partly dry. Otherwise much of it would be brushed off when the arrows are placed in the quiver. The opposite end of the arrow is wound round with wild cotton (ceibo) so that, when the arrow is put into the blowgun, it fits the bore tightly and can be blown out with force. The arrows are kept in a quiver about 25 or 26 cm. long consisting of wild bamboo cane and worn hanging on the stomach from a band round the neck. To the lower end of the quiver [158] a round gourd is attached, provided with a small hole. In this gourd the wild cotton needed for the arrows is kept and pulled out through the hole as it is required.

At the upper end of the quiver hangs a small tool which is of particular interest. Among the Canelos Indians it consists of the extremely sharp jaws of the fish paña (Serrasalmo), among the Jibaros again of the equally sharp nippers of the fresh water crab uriki. When the Indian wants to shoot an animal or a bird he first makes a cut in the arrow with this sharp instrument at the point where the poison ends, so that it will break with the least effort. Experience, it should be noticed, has taught the Indian that certain animals, especially monkeys, but also the bears, when hit by a poisoned arrow, at once pull it out from the body in which case the poison cannot

develop its full efficacy. If, on the other hand, the small operation just mentioned is performed, the arrow at once breaks when the animal tries to extract it, and the poisoned head remains in the body.

With the blowgun the Indians are able to shoot as far as 30 or 40 metres, and in general they display remarkable dexterity with it. The power of resisting the poison is of course different in different animals, and also varies according to the efficaacy [sic] of the poison. Small birds fall at once to the ground in agony, bigger birds generally after a few minutes. Even if the poison does not immediately cause death, yet it brings about a certain paralysis of the muscles and stupefaction, causing the bird to move reluctantly, and if it manages to fly away, it usually does not go far and the Indian, following the direction of its flight, can be sure to catch it in a few moments. Monkeys possess little power of resistance to the arrow-poison and fall to the ground in about five minutes. Bigger animals like the wild hog and the bear cannot be killed with one single arrow, but require several. The bear, for instance, I was told, can only be brought down with some 10 to 30 arrow-shots, according to the action of the poison. The animal is shot after it has taken refuge from the pursuing dogs in a tree. The largest wild animals, like the jaguar and the puma, are seldom hunted with poisoned arrows; to kill them requires a great number of arrows and even then they

would be able to retire to the thickets of the forest where they will die only after several hours."

1: Karsten--159 (1916-18) 1935 Jivaro
116, 278, 784, 411 (1928-29)

"All Indians seem to observe the rule never to use poisoned arrows against snakes, vultures, and other similar animals, which are considered unfit for food and concerning which they have certain superstitious ideas. The arrow-poison in that case would lose its efficacy entirely. Similarly the idea seems common to all Indians, that the blowgun and poisoned arrows cannot be used in war. The arrow-poison with which a human enemy has been killed, it is believed, can no longer be used to kill an edible animal; in this respect the arrow-poison resembles lances and rifles. If an enemy has once been killed with such a weapon, it can no longer be used in hunting. A wild hog, for instance, if killed with such a lance or rifle, would have the same taste as human flesh and would not be eaten by anybody. The Jibaros therefore exchange the lances they have used in war as soon as possible. The Indians told me that in former times they used their blowguns and poisoned arrows in war, but the same rule was valid in regard to them as to the lances and guns, namely, that afterwards they could only be again used in war, never for killing game, since the same weapon cannot be used for both purposes."

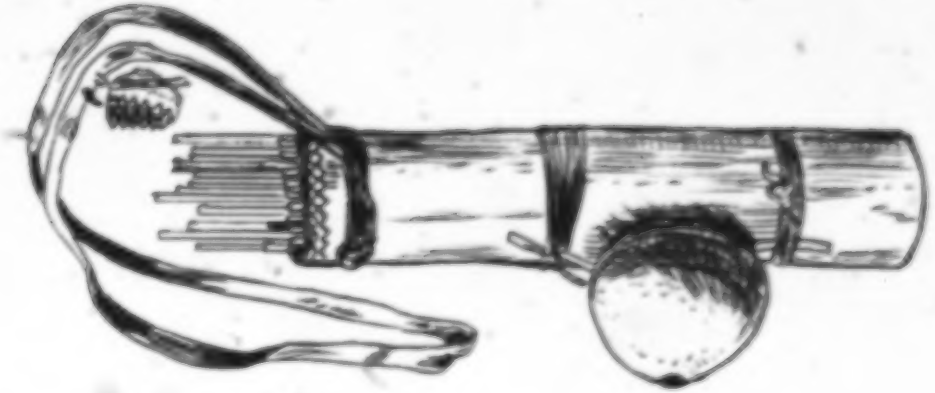

Fig. 4. A quiver for poisoned arrows.

1: Karsten--262-264 (1916-18) 1935 Jivaro-1
116, 712, 411 (1928-29)

"It is still common among the Jibaros to arrange a kind of trap on the way which leads to the house and where one expects the enemy will try to approach it. One such trap consists of a round hole in the ground, about 1 1/2 meters deep and large enough for a full-grown man to fall into it. At the bottom of the hole three pointed sticks of chonta, resembling points of lances, are arranged in an erect position. These pointed sticks are called ashi. The part which sticks out from the earth has a length of about half a meter. At the surface of the earth the opening of the hole is covered with small sticks and leaves which makes it difficult or impossible for the enemy, creeping along in the darkness, to discover its presence before he falls into it. When he falls his feet are transfixed by the pointed sticks and he is not able to get out. Besides, the defenders of the house are often keeping watch at these holes, ready to dispatch the enemy when he is caught in them. The Jibaros call these traps mesértinyu whua, 'a hole of death'.

Another kind of trap, which likewise is arranged on the narrow path leading to the house, is the following: it consists of a small tree, growing close to the path, which is bent down, or of a big branch of a tree, one end of which is fixed in the ground so that with the latter it forms an angle of about 30°. To the upper end of this branch eight pointed chonta sticks are attached in such a way that they form as it were a comb. The branch is bent back like a bow against a couple of poles fixed in the ground for the purpose, to which it is attached by means of a strong liana in a certain ingenious way that

cannot be fully described in words. Across the path a few inches over the ground another liana is stretched [263] and tied at one of the poles just mentioned. Between this liana and the liana holding the bent branch there is such a connection that when the foot of the enemy touches the former, the bow is released, and the comb with the pointed chonta sticks will strike him with terrible force in the face or the chest. The liana stretched across the path is sometimes covered with leaves in order that the enemy may not notice it, but besides, even this weapon is calculated to operate mainly in the darkness, since the attacks are nearly always made at night. The trap described (Fig. 7) is called tambunchi by the Jibaros and singbraru by the Quichua-speaking Canelos Indians.

Whereas the tambunchi has been used by the Jibaros since ancient times, the following defensive measure is of modern origin. Across the path along which the enemy is expected to come a blackened string is stretched at such a height that it is level with a man's chest. At the tree where one end of the string is fastened a charged and cocked rifle is tied, with the barrel fixed in the direction of the string. The end of the string is fixed in such connection with the trigger of the rifle that when the enemy, coming along in the darkness, gives it a push, the shot is discharged and is likely to hit him in the chest. Even if he should [264] escape being hit, the shot would warn the inhabitants of the house that enemies are approaching."

1: Karsten--264-265 (1916-18) 1935 Jivaro
116, 411, 177 (1928-29)

"The principal weapons of war of the Jibaro Indians are the lance (nánki) and the shield (tandára), the former being used for attack, [265] the latter for defence. Nowadays the Jibaros, besides these weapons, also commonly use firearms (akáru) received from the whites, generally in exchange for a human head (tsántsa). The lance should be made of the hard wood of the chonta palm, if possible the kind of chonta cultivated by the Jibaros (called ui). The head is of prismatic shape and with the shaft forms a single piece. Formerly the Jibaros also used lance-heads made of the leg-bones of the jaguar or the bear, which were fitted into shafts of chonta, or shafts made another kind of wood and painted red with the paint called yukáipi. These lances were moreover frequently adorned with showy parrot feathers. Lances adorned in this way are no longer encountered anywhere, but on the other hand those provided with iron heads and shafts of yukáipi are not seldom seen. A special power is ascribed to the chonta lance owing to the belief that the spiny chonta palm itself is a demoniac tree, the seat of a spirit (wakáni or iguánchi). The chonta lance therefore inspires not only men but also spirits and demons with fear. Hence at the Tsantsa-feast the head-trophy is always kept tied to a chonta lance at those moments when it is not needed for the ceremonies."

1: Karsten- -265-266 (1916-18) 1935 Jivaro-1
116, 411, 262 (1928-29)

"The shield (tandára) is made of the enormously big air roots of the giant tree which is called kámaka by the Jibaros and llanchámа by the Indians of Canelos (Bombax ceiva), a kind of wood which has the advantage of being at once light and strong. It is always round in form and wrought of one single piece, although the shields are sometimes very large, 80 to 90 centímetres in diameter. Just as is the case at the making of other important objects, the Indian has to observe certain rules of abstinence while he is making the shield, work which of course requires a long time. During the days that he makes the rough work he partly fasts, especially abstaining from eating batatas or sweet potatoes (Convolvulus batatas), called inchi by the Jibaros. If he eats this fruit, the shield will mould, rot, and become useless. This superstition is due to the fact that the sweet potato has the same appearance as mouldy or rotten wood. During the same days the maker likewise abstains from cohabiting with his wives, for if he has intercourse with a woman the shield will get warped or burst, and consequently spoiled.

The CANELOS INDIANS, at the making of the shield, formerly observed the following rules. The rough-work was carried out in four days. The Indian worked every day from early morning until noon. During the whole forenoon, until the work was finished for that day, he fasted and did not eat or drink anything. As soon as the work was finished at noon [266] he had chincha (manioc beer), and in the afternoon he could also eat other kinds of food. While working upon the shield he observed the rule not to speak

to anybody, but kept strict silence. Nor did he, during the four days and nights, cohabit with his wife. If he infringed these rules the shield would get lumpy or burst, or be attacked by mould.

As soon as the shield is made it is often painted on the outside with the black dye obtained from the genipa fruit, called sua by the Jibaros. The patterns represent spirits (wakáni, supai), giant snakes (pangi, amárun), butterflies (wambishku), and other animals. These patterns are supposed to inspire the enemy with fear and to give strength and courage to the warrior himself. Nowadays such ornamented shields are no longer made and seldom encountered in Indian houses. A unique shield of this kind which I obtained from the Jibaros is now in the ethnographic museum of Gothenburg.

The Jibaros use shields of two kinds. Some are very large and somewhat heavy and are used only for defence within the house. The shield rests against the ground or against a round seat of the kind the Jibaros use, and the warrior with his lance tries to defend himself against the enemy penetrating into the house. Other kinds of shields are smaller and lighter and are carried by the Indians on war expeditions.

The shield of the Jibaro Indians is not only a weapon of defence, but also a religious instrument, a fact that everybody who takes part in their victory-feasts is able to establish. The tandára is full of magic power, and when is [sic] is beaten with the lance in a particular way, this is in fact a sort of religious or magical ceremony which is

believed to inspire the spirits--first of all the spirit of the slain enemy--with fear. The ceremony referred to is called Yáktinyu."

1: Karsten--266
116, 411, 713

(1916-18) 1935
(1928-29)

Jivaro

"The Jibaros never use blowpipes and poisoned arrows in their wars, but only for hunting. They believe that if they kill a man with a poisoned arrow that poison will no longer do for killing an animal or bird of the forest. Besides, it seems that the poisoned arrows are not regarded as a sufficiently effective weapon to fight men with. The Indian, when killing his enemy, desires to inflict as large wounds and to shed as much blood as possible, a fact that explains his predilection for the lance as a weapon of war."

2: Stirling--60 [3] (1930-1931) 1938 Jivaro
116, 721, 411

"The blowgun is never used in warfare and, as has already been mentioned, only lances are utilized in the hand-to-hand fighting in the house.

Poison is never used in warfare because of the fact that it was given to men for the purpose of hunting game and to use it for fighting would be to offend the spirits. Force only is supposed to be used in killing enemies in war."

116, 411

"A study of the weapons used by the Jivaros in warfare and in hunting indicated that interesting changes have taken place since the Spaniards first entered their country. Benavente, in 1540, speaks of the first group of Indians that he encountered in the Jivaro country, [79] probably on the Paute River, as being armed with lances and round shields. Later, at the point where he terminated his penetration, he encountered another considerable group of Indians which he described as being dressed in camisetas and mantas. He says these Indians were armed with slings and shot at the Spaniards with bows and arrows. From this general description I believe that there might be some doubt as to these latter being Jivaros.

Salinas, writing in 1571 (second letter), says that the Indians in the vicinity of Santiago have copper axes, (13) shields made of tapir skin and of wood, and spear throwers.

Joan Pizarro, writing in 1582 of the Jivaros of the Santiago, says that they hunt game with the bow and arrow. Speaking of the Indians of Valladolid, western neighbors of the Jivaros, he says that their arms are lances of palm wood more than 25 palms in length, stones, axes, and javelins. The stones very probably refer to the use of slings.

Salinas says that the Mainas, eastern neighbors of the Jivaros, for their arms have darts, shields, throwing rods with spear throwers, and wooden clubs (macanas) made of palm wood. There has been no reference to the use of clubs by the Jivaros.

"13. The author found two archeological specimens of copper axes on the lower Upano River."

2: Stirling--78-79 (1930-1931) 1938 Jivaro-2
116, 411

"Lucero, writing of the Jivaros a century later, speaks of lances and shields, adding that the lances were frequently tipped with human bone taken from enemies killed in battle. He also speaks of the Jivaros of the Santiago carrying stones in the slack of their skirts, which might point to the use of slings."

2: Stirling--79 (1930-1931) 1938 Jivaro
116, 411, 177

"Guns did not come into general use among the Jivaros until the early part of the twentieth century. During this period they captured some guns from the Peruvians, and later the light muzzle-loading escopetas or shotguns were introduced in considerable numbers by the traders. At the present time it is the ambition of every Jivaro to own a gun, although probably less than half of the men possess them. This strong desire to own 'escopetas' can scarcely be based on practical considerations, since they are little more effective for hunting purposes than the blowgun and have the additional disadvantage that the noise made in shooting frightens game. While guns are becoming more common, blowguns still continue to be important adjuncts of every Jivaro household.

It seems clear that during the sixteenth century the Jivaros used lances, spear throwers, and bows and arrows. Sometime during the latter part of the seventeenth century the bow and arrow and the spear thrower began to go out of use, being replaced by the blowgun with poison darts."

2: Stirling--80 (1930-1931) 1938 Jivaro
116, 175, 411

"During the writer's investigations he noticed that the blowgun, now the most striking and characteristic weapon of the Jivaro, is never mentioned by the sixteenth century writers. This is of special interest when we observe that later writers have been particularly impressed by its occurrence and never fail to speak of it. This fact led to an investigation of early records in other regions of South America in an attempt to discover from which direction this weapon reached the Jivaro. The only instrument at all comparable which is mentioned in the sixteenth century is the pea shooter or pellet gun of Mexico and Central America. This simple device, which was little more than a toy for shooting small birds, is a far cry from the elaborately manufactured, complex blowgun, shooting long-range piercing darts made effective by the use of poison. The earliest reference to the true blowgun found by the writer is in Saabedra, who in 1620 describes the blowgun with poison darts in use among the Mainas on the Morona, who were the first of the eastern Andean tribes to be missionized."

2: Stirling--80 [2] (1930-1931) 1938 Jivaro
116, 411, 177

"The remarkable parallel between this weapon [KS: the blowgun] and its accessories as manufactured in Indonesia and in South America has been a frequent subject of comment by ethnographers. Details regarding the nature of many of these parallels and the improbability of their independent development need not be mentioned here. As far as the writer is aware, no one has suggested the post-Columbian introduction of the blowgun into the South American region. The amazing similarity in the methods of manufacture and materials used would seem to make it extremely unlikely that this highly specialized complex could have developed independently in the two areas. It seems to the writer much more probable that the use of the blowgun and its equipment was brought into South America by southeastern Asiatics, possible from the Philippines, who were carried across the Pacific on one or more of the many Spanish galleons which followed this route in the sixteenth century. These individuals, escaping into a familiar jungle environment which supplied all of the necessary materials, could easily have used their knowledge to manufacture this complicated but most useful weapon. (13a)

"13a. The writer has been informed by Dr. Wendell Bennett that there is an early Chimu vessel in the collection of Rafael Larco Hoyle, of Trujillo, with a painting of what appears to be a man using a blowgun. This may represent a pellet gun."

2: Stirling--80-81 (1930-1931) 1938 Jivaro
116, 177, 411

"Judging from the early literature, its [KS: the blowgun] use in South America originated in the general vicinity of the Mainas, from whom it was obtained by the Jivaros, who today are probably the most expert blowgun manufacturers in South America. From this region it spread across the northern Amazon basin to the Guianas, where its intro-[81] duction appears to have been comparatively late. It seems quite certain that the Jivaros did not have it until the seventeenth century.

In northwestern South America the blowgun is called variously cerbatana, or bodoquera, or by the Quechua term pucuna. By the Jivaros it is called umi.

There are numerous variations in the technique of making blowguns as practiced in different sections of the Jivaro country. The descriptions given by Rivet (14) and that of Up de Graff (15) approximate most closely the process as witnessed by the writer on the Chinganasa River. The writer has on numerous occasions observed Jivaros at work manufacturing blowgun darts and preparing them for use.

"14. Rivet, 1907, p. 594.
15. Up de Graff, p. 210."

2: Stirling--81 -83 (1930-1931) 1938 Jivaro -1
116, 411

"When a man desires to make himself a blowgun he first cuts down a suitable chonta palm which is allowed to dry in the sun for a period of about a week. At the expiration of this time the thorns are removed from the outside of the trunk and it is split in half. From these pieces, two strips, each about 3 inches in width, are split off and cut to the length desired for the blowgun. Then with a machete these strips are shaved until they are very straight and taper from one end to the other. One side of each is made flat while the other is rounded in such fashion that when the two flat sides are placed together the two strips form a cylinder which tapers from about 1 1/4 inches in diameter at one end to three-quarters of an inch at the other end.

The operator than places in the ground 8 feet apart two forked uprights at a height of about 3 feet, one of these being an inch or two lower than the other. A perfectly straight cylindrical rod of chonta wood is prepared, approximately a quarter of an inch in diameter and slightly longer than the intended length of the blowgun. Then a small straight groove is scratched with a bone awl down the full length of each strip in the center of the flat side, following the straight grain of the wood. Using a sharp tooth, this groove is enlarged on each strip until the two together are slightly less in diameter than the intended bore of the blowgun. The two halves are then placed face to face with the rod sandwiched between, in the middle, and are tied together with bark strips.

Sand and water are then poured into the hollow at the high end. The rod is worked back and forth, enlarging the groove. From time to time the implement is turned over so that the grinding goes on equally on each section. This operation is continued, the sand and water being constantly applied, until the flat faces of the two chonta [82] strips meet and have been planed perfectly smooth. The bore is then of the size desired.

Next a section is cut from the leg bone of a watusa (cayuca) forming a bone tube about 2 inches long. The edges of the bone are ground to make them smooth. Then secate(16) is melted over the fire and smeared over the entire surface of the inside of the two chonta strips, which are then carefully fitted together so that the edges meet exactly. The secate dries quickly, firmly gluing the two sections together.

Next the implement is wrapped closely in spiral fashion from one end to the other with tinyuci (fiber strips from the midrib of the ivory nut palm). The strips which are used about a half inch in width. This is fastened tightly in place and is then smeared all over with secate. After the secate has dried it is smoothed and worked over by heating a machete and applying the flat side. Sometimes the smoothing is done by means of a stick while the original application of the secate is still warm and soft.

A quantity of charora (17) is placed in a pot and heated until it melts and boils. Then it is mixed with sucuta (the juice of a green fruit about the size of a small orange) which

16. Latex of Sinphonia sp.

17. Wax-like resin from the Copernica cerifera.

darkens the mixture. When it has taken on a black color, the pot is removed from the fire and set aside until the sucuta has cooled a little. Then with a stick or machete it is smeared all over the surface of the blowgun. Following this process, it is smoothed and dressed with a stick or a hot machete as before. When this has been done, the surface of the implement has taken on a gloss.

Next the large end of the blowgun for a length of 2 inches is dressed down until a small cylinder projects which is slightly larger than the bore. The bone mouthpiece is fitted snugly over this and the shoulder left by dressing down the end of the tube is covered over and tapered down by applying some of the warm charora which covers half of the bone mouthpiece. Another small lump of charora in the form of a small mound is applied to the barrel about a foot from the mouthpiece. The two incisor teeth of a watusa are then imbedded in this so that the groove between the teeth is parallel to the axis of the bore. This serves as the blowgun sight. (18)

Finally the bore is polished by drawing the blowgun back and forth over a rattan strip to which a wad of cotton or balsa floss is attached. Sometimes a long slender ramrod of chonta wood with cotton attached to one end is used in place of the rattan strip. This

"18. Rivet (1907, p. 595) states that this is not used as a sight, but as a guide to the hunter so that he always has the tube in the same position when shooting and can thus correctly allow for any error in the shooting quality of his weapon."

process being completed, the blowgun is ready for use. [83]

The work is done little by little as the maker has the leisure or inclination, so that it is difficult to say how long a time is required. A man in a hurry could probably complete the entire process in a week."

2: Stirling--83 (1930-1931) 1938 Jivaro
116, 411, 784

"The length of a blowgun varies more or less according to the desire of the maker. In general, however, they may be divided into two types: the short variety which are usually approximately 10 feet in length, and a longer type which may be as much as 15. The longer the weapon, the greater its range and accuracy. On the other hand, the long blowgun is an awkward implement to carry through the thick forest. The long blowguns are generally used in hunting larger game, such as wild pig, monkeys, and large birds which roost in high trees. During the manufacture of the blowgun various dietary taboos must be observed and the maker must remain continent, otherwise the blowgun will warp or check.

Frequently a pair of canine teeth of the jaguar or two alligator teeth are attached to the blowgun at the base of the mouthpiece by imbedding them in chorora in such fashion that the points of the teeth curve around the cheeks of the user when the tube is held in position. These seem to be particularly desired for ornament but they serve a useful purpose as well, giving a certain amount of lateral support to the weapon."

"In using the blowgun it is held with both hands, palms down, close to the mouth, with the sight held uppermost (pl. 22, c). The bone mouthpiece is placed to the lips and a slight puff is sufficient to speed the dart on its way. Although the range varies in proportion to the length of the weapon, it might be said that the maximum effective range of an average blowgun is about 45 yards.

In order to keep the weapon from warping or bending it is always stored in an upright position, muzzle upward, usually with the mouthpiece resting on a block of wood, and tied to the center post of the house, or suspended vertically, muzzle upward. In order to keep the bore clean, a piece of cotton or kapok is stuffed into the muzzle.

The blowgun darts, called tsensac, are made from the midribs of the leaves of the ivory-nut palm. The leaves are cut at the season when the ivory nuts are ripe, for at this time the wood is very hard. A cut is made just deep enough to go through the bark covering of the rib and then the bark is stripped off. These strips are cut into the proper length, which is measured from the base of the palm of the hand to the crook of the elbow. The strips are then split into sticks of the proper size and shaved to a point at one end, the stem of the dart having a diameter equal to that of a common match.

The darts are stored in a cylindrical quiver called tunda, made from a section of bamboo, with a cover to fit over the opening (pl. 36, a). The quiver is filled with a roll of the fibrous material obtained from [84] inside the midribs of tinyuci palm leaves in order to protect the darts and to keep them in place. Attached to the dart quiver is a hollow

spherical calabash with a small opening. This is filled with the floss of the silk cotton tree (19) which is attached as wadding to the butt end of the darts as they are needed (pl. 36, e)."

"19. Eriodendron anfractuos.

2: Stirling--85 (1930-1931) 1938 Jivaro
116, 411, 224

"Attached to the dart quiver (pl. 36) is part of the jaw of a fish with sharp teeth (Serrosalmo piraja). This instrument is used for making a circular cut around the dart about an inch from the point so that this section will break off in the wound. This procedure is particularly necessary in shooting monkeys, as a monkey always will attempt to pluck the dart out immediately upon being hit."

2: Stirling--85 [3] (1930-1931) 1938 Jivaro
116, 713, 411, 777

"The blowgun is never used in warfare. The Jivaros say that it was given them for the purpose of obtaining game. To use it against man would bring bad luck. (22)"

"22. Figueroa, writing of the Mainas in 1665, specifically states that the blowgun and poison darts were never used against their human enemies. Skinner, 1805, p. 285."

2: Stirling --85-86 (1930-1931) 1938 Jivaro
116, 411, 713

"The traditional war equipment of the Jivaro from earliest times has consisted of the lance and shield (pl. 28). Before the spear thrower was abandoned, a small lance or javelin was in common use. The ordinary name for lance is nangi, but ceremonially it is referred [86] to as shingi. It is made from the hard black wood of the chonta palm and as a rule is from 6 to 8 feet in length. The head is usually in one of two shapes; either diamond-shaped with a low ridge running down the center of each side and tapering to a cutting edge, or triangular in cross section without the cutting edges (pl. 14, a). At the present time lance heads of the former type made of iron are in common use (pl. 11, a). From a practical standpoint, these are unquestionably superior to the wooden lance, but the Jivaros believe that the all-chonta lances contain magical properties not possessed by iron, and therefore the more conservative Indians still prefer them for use in warfare. Until comparatively recently the Jivaros say that they used lances tipped with points made from the leg bones of the jaguar. In the seventeenth century Lucero spoke of lances fitted with points made from human leg bones. These seem to have been a smaller type of spear and probably represent the javelin which was formerly propelled by means of the spear thrower."

2: Stirling--86 (1930-1931) 1938 Jivaro
116, 411, 713

"The use of the spear thrower appears now to be entirely forgotten by the Jivaros. Pigorini figures a spear thrower credited to the Murato. It consists of a straight stick tapering slightly from the butt to the tip. An inch or two below the tip a spur is attached, apparently by means of binding made secure by the addition of some sort of wax or resin. The handle has a small perforation through it about an inch from the base through which a string is passed, evidently for the purpose of fastening the implement to the wrist. It is not dissimilar in general appearance to archeological specimens from the Peruvian highlands. (22)

Mortillet says that the javelin proper consists of a shaft 76 cm. in length made from a stalk of caña brava (Guadua latifolia), which is smooth on the outside but filled with pith and unusually light in weight. One of the extremities is closed by a plug made of a resistant wood for receiving the spur of the throwing stick. Into the other extremity is fixed a chonta point in the form of a very sharp prismatic prong about 22 cm in length. (23) "

"22. Pigorini, p. 46, pl. 1.
23. Mortillet, 1891, p. 241."

"The Jivaros call the shield pandara. Like the lance, it has apparently changed but little during the passage of the centuries. They are made from the large flat buttresses of the camusha (ceiba) (24) tree. These buttresses do not have a definite grain and therefore do not split or check easily. In addition, they are tough and light. The shields are circular in form and, although approximately 3 feet in diameter, are always made from a single piece. The shield is fabricated in such a manner as to make it appear to be composed of three [87] superimposed concentric disks, each about a half inch in thickness and each with a diameter approximately one-half that of the disk upon which it is superposed. Thus the center of the shield, while apparently somewhat thicker than the outer edge, is actually not as much so as it appears because of the concavity of the inner surface which is really in the form of a very much flattened cone. A hand grip of rattan is attached at the apex of this cone and is fastened in place by being pegged into three small holes made on either side of the central disc (pl. 28).

As a rule, the shields are painted with sua and achiote. The decorations usually represent animals or spirits designed to give power in warfare. The shield which the writer obtained from Hisama on the upper Chinganasa River had a design depicting Pangi, the anaconda; the moon, and the sun's rays. The round shield itself represents the sun.

"24. Bombax ceiva.

The shield, like the chonta lance, is supposed to contain tsarutama so that it is used for other purposes than for defence in fighting. Hisama carried his shield with him when night fishing, in order to ward off Iguanchi. He stated that the shield was called upon frequently when it was suspected that evil spirits were in the vicinity, or that a rival wishinu was attempting to work harm through magical powers.

As is the case when making the blowgun, the maker of a shield is required to undergo rigid taboos during the period of manufacture. He must remain continent during this time, must not talk, and must be particularly careful of his diet. If the proper observances are not followed, it will lose much of its power, and is likely to warp and check.

Formerly shields were also made from the skins of the tapir and of the manatee, but this practice has apparently been abandoned."

3: Simson--387 [2] (No date) 1880 Jivaro
116, 411

"Their arms are the spear of chouta, sometimes furnished with an iron head, and 'bodoquera,' or blow-gun, for smaller game and birds. Some use shields."

3: Simson--390 [3] (No date) 1880 Jivaro
116, 411

"Their [KS: the Canelos] fighting is done entirely with the lance, which is their inseparable companion, and all my attempts to induce any of them to part with his weapon were useless. The same reply was always elicited: 'Wherewith shall I kill the jaguar when he comes?' These spears, as those of the Jívaros, are very well made, of choutapalm, and generally with a well-shaped iron or steel head, procured from traders. Some men have, however, on one or two occasions, penetrated into civilization as far as Riobamba solely with the object of purchasing a spear-head to their taste. The shaft is gracefully tapered towards the end, and sometimes tastefully coloured."

4: Up de Graff--210-212 (1897) 1923 Jivaro-1
116, 411

"While speaking of the food supply, I will add a word or two about that deadly weapon, the blow-gun, which is the only means the Jívaros have of procuring meat. These 'guns' are about ten feet long, with a bore of about 1/4 inch, and an outside diameter of some two inches at the mouthpiece, tapering to 3/4 inch at the 'muzzle.' They have a killing range of two hundred feet at least, within which distance perfect accuracy is assured. Any target from the size of a squirrel upwards can be hit every time by the skillful hunter. Their absolute silence adds to their deadliness a thousandfold, for the hunter can bag a large number of monkeys or turkeys before the troop or flock discovers that death is flying through the air.

The ingenuity that the Jívaros display in the manufacture of these weapons with the primitive implements at their command is worthy of attention, for the finished article could not be turned out any better by a modern factory. What machinery in the world could better overcome the mechanical difficulties of producing a perfectly true 1/4 inch bore ten feet in length than do these simple people?

The wood used is the same as that employed for making spears, and it is known in Inca as chonta. In grain and colour it resembles ebony, but is much heavier and harder. It belongs to the palm family and bears good fruit. It is remarkable for its absolutely straight [211] grain and its rigidity (the qualities which make it fit for this particular use). It is so brittle that when broken it splinters into a number of long sharp needles; it is so hard that it is impervious to moisture and unaffected by heat, so that it

never warps.

The strips of the shell of the chonta are selected, cut to the right length, and smoothed to a thickness of approximately an inch by the removal of the pith, being split to a breadth of an inch and a half. Then by means of the crude tools they have--flints, stones, animals' teeth and shells--a groove is scraped in each piece 1/4 inch wide and 1/8 inch deep. It would, as a matter of fact with such primitive tools be materially impossible to cut a crooked groove in this wood, on account of its perfectly straight grain. The two strips are then placed together and bound here and there with bark; then the outer surface is split off bit by bit till it is round in form; next, by making incisions at various points and stripping off portions of the chonta, the weapon is tapered so as to comply with the dimensions given above. Now the process of binding commences. The 'gun' is tightly wound with green bark tapes (about half an inch in width) from end to end. On this binding is melted black bees' wax (taken from an insect which builds its hive in the ground, and produces a honey which is used for medicinal purposes) which is smoothed over with hot stones and forced into the cracks so as to perfect the surface; next, another layer of bark tapes, slightly thinner, is bound on, and more bees' wax (a heavier coat this time) is applied; the final step in the finishing of the exterior is a second treatment with hot stones, which produces a hard, even surface. Then the completed weapon is a perfectly straight, round, tapered black tube.

Next the bore is trued and polished by means of a cord with a rag tied to its centre

and stretched between two [212] trees. The tube, having been slung on this cord, is run backwards and forwards for weeks, while sand and water are fed into one end; toward the end of this laborious but efficient process, finer sand is used. At the end, the bore has a surface equal to that of the barrel of a shot-gun. Finally, to the butt end of the gun is fitted the mouthpiece, a carefully scraped funnel of hard-wood fashioned to fit the mouth exactly, so as to admit of no air escaping and robbing the weapon of its power. This piece is made to fit over the end of the tube to which it is bound, and waxed by the same process as I have described above."

4: Up de Graff--212-213 (1897) 1923 Jivaro-1
116, 411

"The arrows are always treated with jambi (poison--Inca). The particular kind which is used, the product of boiling the bark of a vine, has a swift and painless effect on all the animals and birds of the forest, as far as I know, except the jaguar. (I once tried one of the latter, and filled him so full of arrows that he looked like a porcupine, without any apparent effect except that of angering him.) The arrows are made from a bamboo having a triangular cross-section, and of the same size at the joints, which the other canes and bamboos are not. From this species can be cut an absolutely straight missle, which would be impossible in the case of the others, in which each section between the joints is, however slightly, concave. By splitting and scraping, an arrow some twelve inches long and one-sixteenth at its greatest diameter, is made. One end is sharpened to a point one inch long, from the base of which the whole arrow is tapered toward the rear to a point equally fine, in order to give it a perfect balance in flight. The head is dipped in the jambi and dried in the sun or before the fire. The base of the head is ringed by means of an instrument which is always carried attached to the quiver (a section of bamboo); this consists of the lower jaw of the paña (the barking fish--[213] Inca) which is fitted with razor-edged teeth. A tuft of cotton is twisted round the shaft about three inches from the tail, which serves the double purpose of the feather of an ordinary arrow and the wad between the powder and shot of a cartridge. Forced out by the air behind the cotton tuft, the missle leaves the 'muzzle' so rapidly that it is invisible to anyone looking across its path (though of course visible from behind). The

trajectory for the first fifty yards is remarkably flat for the class of weapon, and will penetrate a pine board half an inch at fifteen yards' range. I have hunted with these guns a great deal and can bear witness to their deadly efficiency."

9: Bennett--660 (no date) 1933 Jivaro
116, 411

"Most interesting specimens in this collection [KS: donated by Harry W. Smith to the American Museum] are two ten-foot blow-guns and two dart quivers. The blow-guns are in a state of disrepair, which allows one to make close observations on their compositions and the technique of their manufacture.

Blow-guns are made from the chonta palm, which is both hard and straight-grained. The guns are made in two pieces cut to a semi-circular shape and grooved on their flat sides. The grooves are also semi-circular in shape, and the straight grain of the palm allows them to be very evenly cut so that when the two pieces are placed together a remarkably clean one-quarter-inch bore results, which is later polished smooth with string, cloth, and sand. The two pieces are now bound tightly together with long thin strips of bark wound spirally around them. Then the whole binding is covered with black beeswax. Several layers of this kind may be applied. The two blow-guns in this collections have carved bone mouthpieces, and taper from about an inch and a quarter in diameter to three quarters of an inch. One has a raised lug near the mouthpiece end which probably served as a sight."

9: Bennett--660 [2] (no date) 1933 Jivaro
116, 411

"The quivers are made of a one-foot section of bamboo fitted with a woven cloth strip for carrying. The bamboo darts are about a foot in length and pointed at one end. They are scraped down to a delicate thinness. A large gourd is attached to each quiver. This contains cotton which is twisted around the dart before it is placed in the blow-gun. A small container of poison is also attached to the quiver. Finally each quiver has a lower jaw of a piranha (the biting fish) with sharp teeth as part of its equipment. Before shooting a dart, it is grooved with this sharp-toothed jaw about an inch from the point. The cotton wadding is twisted around it and the point is dipped into the poison. It is then placed in the blow-gun and expelled with a sharp puff at its target some hundred feet away. If the animal struck starts to run, the dart will probably break off where it has been grooved, thus leaving the poisoned point to work its effect on the victim."

10: Anthony--152-153 (1920-21) 1921 Jivaro-1
116, 224, 411

"A great part of their game the Jivaros kill with the blowpipe or blowgun. The blowpipe is a long, slender rod of wood, made from two strips which are carefully hollowed out down the midline, in such fashion that when bound together by a long strip of bark there is a straight, smooth, cylindrical bore the full length of the rod. The blowpipe is generally made of black palm, which has a very tough, interlacing fiber, so that the rod, though slender, has great strength and will not warp or twist. The ammunition for this weapon may be either little balls of clay or arrows. Clay is shaped into small balls, of a diameter just big enough to fit the bore. These balls, after having been baked in the sun, are placed in the mouth and blown through the tube as a small boy blows a bean in a toy blowpipe, but the length of the Indian blowpipe, often eight to ten or more feet, gives the clay ball a great velocity. As a result the projectile will kill small birds or mammals such as squirrels or rabbits. The arrows are long, slender strips of cane, straight and with a sharpened point; a tuft of cotton is twisted about the rear end of the arrow to make it fit the bore in an airtight manner. These arrows fly exceedingly true and game may be struck with them at long distances. For larger game poison is used; for small birds the arrow is plain.

For this purpose the Jivaros use a black gumlike substance brought up from the lower Amazon and undoubtedly a form of curare. The arrows are prepared by dipping into the

poison about half an inch of the tip which then looks very much as if it had been coated with tar. This poison is narcotic in its action and very deadly and an animal that has been wounded with an envenomed arrow will drop in a very few minutes. If the Indian is hunting monkeys, his favorite game, the arrow is scored with a knife about an inch back of the point so that it may break readily at this place. The monkey shows considerable cleverness when hunted and, if wounded, invariably plucks out or breaks off the arrow. He is outwitted, however, by this precaution, because the [153] arrow breaks and leaves the poisoned tip in the wound. I was told that salt is an antidote for the poison, and if the Jivaro wishes to take a monkey alive, he may do so by hurrying at once to a stricken animal and placing salt in its mouth."

10: Anthony--153 (1920-21) 1921 Jivaro
116, 411

"Another weapon frequently seen among these people is the lance or spear. The point of the lance is of iron, very sharp and flat; the shaft is of some tough wood. With this they may kill bear, peccary, or any of the larger terrestrial mammals."

12: Rivet--593-594 (no date) 1907 Jívaro-1
116, 411

The national weapon is the lance. It is shaped entirely from a single piece of chonta, a very hard wood of black color. It has a variable length: the five examples that I possess (fig. 17) measure 2^{m} 15, 2^{m} 36, 3^{m} 5, 2^{m} 15, and 2^{m} 38. Each one of them is composed of two parts: a cylindrical handle 2 cm. in diameter and a point which always has the shape of a triangular pyramid, the cut of which is sometimes an equilateral triangle 2 cm. per side, or a more or less elliptical triangle with a base sometimes 5 cm. 5 long. In the first case, the passage from the handle to the point is made without notable widening (fig. 17 -1-3), in the second case, there is a sudden widening at this point (fig. 17 -4-6-7). The length of the point varies considerably; on my five specimens it is respectively 49, 56, 42, 64 and 89 cm. In normal times, when he has nothing to fear, the Jíbaro carries a lance with a point no longer than 20 cm. The lances with long points are primarily designed for war. Along the lateral sides, the point sometimes has barbs that are quite deep with the opening toward the handle. On my specimens 3 and 6, there are two pairs: upon the first at 40 and 48 cm., and upon the second at 13 and 17 cm. from the end. Some of these lances (nos. 3, 6 and 7) have ornaments made of cotton thread and bird feathers, forming a veritable collar at the place where the handle terminates. It is probably at this point that the Jíbaro holds the weapon in order to strike. Lance no. 7 is ornamented with three narrow rings made of cotton thread along its point.

12: Rivet--593-594 (no date) 1907 Jívaro-2
116, 411

This primitive weapon is tending to disappear, for now the Jíbaro can easily obtain iron spear-points. He attaches them with pitch to the end of a piece of very light white wood, which he paints red for more or less of its length with the aid of a vegetable substance called yucalipe.

The lance is a thrusting weapon but sometimes, although very rarely, it is employed as a missile.

The blowgun is more complicated in manufacture so that certain individuals have made a specialty of it. A tree trunk 4 to 5 meters long set at a certain distance from the ground, with the top smoothed off, serves as a work table for these artists. Upon this work-bench they place two carefully chosen, firm stalks of chonta side by side, of compact, black fiber, very dry and the proper length for the blowgun. The upper surface of these stalks is first leveled with a knife, then one of them is fixed solidly with little pegs or nails of chonta, and the Indian, using the second as a plane, rubs the two roughly-flattened surfaces together, putting wet sand between them. This polishing operation lasts many days. This done, the movable piece is pinned down beside the first; then the artisan, stretching a cotton thread wet with manduru (Bixa orellana) [595] dye along the axis of one of them, raises it, and then loosens it so that a perfectly straight red line is traced by elasticity on each surface. These lines serve as a guide on each piece for hollowing out a semi-cylindrical groove. This work is done with the aid of a hog tooth (Dicotyles labiatus) sharpened on stone in the form of a burin and tied to the end of a handle (fig. 18). This operation finished, the two pieces are joined together, face to face, so that the half-canal with which each of them is grooved forms by superposition the bore of the blowgun.

The outer surface of the instrument is carefully rounded with a knife, then, with the aid of fine, supple and resistant strips of tree bark 3 cm. wide, the two halves are joined together very strongly by a series of spiral turns; in addition the whole thing is

coated with a kind of tar that the Indian has melted in a pininga; then with admirable patience, he softens this coating by heating it bit by bit, and polishes it and smooths it with the soft inner surface of manioc rind. Finally, the artist needs only to finish the central groove, left very rough and uneven by the work of the burin. At the end of a narrow rod of chonta as long as the tube, he places a piece of the skin of a fish called raya and uses it to polish the interior. For the fish-skin, he presently substitutes some leaves of maize and finally a plug of cotton. This is the last operation in the laborious process.

Footnote to Fig. 18. Burin (1)

1. The drawing of the burin is extracted from: Luigi Pigorini. "Di alguni oggetti etnologici dell' Ecuador posseduli dal Museo preistorico ed etnografico di Roma" (Reale Accademia dei Lincei. Sér. 3. Memorie della classe di scienze morali, storiche e filologiche. Vol. VI. Meeting of April 24, 1881). Pl. I, fig. 4. This object comes from the Muratos.

12: Rivet--595-596 (no date) 1907 Jívaro
116, 411

The two blowguns in my collection measure 2^{m} 26, and 2^{m} 80 [596] (fig. 17 -2-5). The mouth of the first is made of a bone tube, that of the second is wooden. At one end the instrument has a projection on the outside which, at first glance, seems for the purpose of serving as a sight; that is not true: in fact, it is found on the same end as the mouth. Its purpose is to permit the Indian always to place his weapon in the same position at the time of shooting and thus always make the same correction in his arm.

With his blowgun, the Indian shoots little arrows, the ends of which are poisoned for a length of only 2 cm. They are little round rods 245 mm. long, $2^{mm.}5$ wide, terminating in a very sharp point. These arrows are kept in a quiver or tunda (fig. 8-9), a bamboo tube 28 cm. long and 65 mm. in diameter, the bottom of which is blocked with pitch; they are kept in place by a kind of straw mat which holds the tunda. Attached to this apparatus by vegetable fibers is a calabash containing huambulushi, a kind of cotton produced by Bombax ceiba [JP: kapate], and suspended by a string is the jawbone of a fish with very fine teeth (Serrosalmo Piraja) (1). At the time the arrow is shot, its posterior end is encircled with a round cotton pad of the same caliber as the bore of the blowgun, then he makes a circular saw cut 3 cm. from the point with the jawbone: the stricken animal, in struggling, breaks the arrow at this point of least resistance and only the poisoned part stays in the wound.

1. Colini. "Collezione ethnografica degli indigeni dell'alto Amazzoni," op. cit., page 39.

12: Rivet--597-598 (no date) 1907 Jívaro
116, 411

The shield is round and measures about 1 m. in diameter. [her made of the skin of a big tapir (Tapirus americanus) or of a manatee (Mana[ericanus), or of a very hard wood, usually cedar (Cedrela odorata) which lances [pierce. Gonzalez Suarez says that the palo de balsa (Ochroma piscatoria), exces[light and elastic as cork, upon which the lance rebounds without penetrating, is al[(1). Reiss likewise points out the use of soft and light woods (2). Here is the [ption given by Uhle of a specimen brought back by the German explorer (3) (fig. 19

"The shield is made of wood, light in weight and color,[598] [the form of a round flat disc, the exterior surface of which is divided into three co[c circles, each of which projects slightly beyond the next, going from the center [periphery. The semi-circular handle, which serves to hold it, is formed of th[all curved sticks, fixed like pegs by their ends into the disk itself, and strongly [together with the aid of a strip of cipó [JP: a liana] (?) or of bark which is wra[ound them."

1. Gonzalez Suarez. Historia del Ecuador, op. cit., vol. [212.
2. Reiss, op. cit., page 334.
3. Kultur und Industrie Sudamerikanischer Volker nach den[sitze des Museums fur Volkerkunde zu Leipzig befindlichen Sammlungen von A. S[. Reiss und B. Koppel. Text und Beschreibung der Tafeln von Max Uhle. 2 [rlin, 1889-1890, 2nd vol., pl. XXIV, fig. 9. It is the reproduction of this figure th[ive here (fig. 19).

12: Rivet--598 (no date) 1907 Jívaro
116, 411

The javelin used by the Jíbaros is one of the most unusual; it can be thrown with the aid of a propelling device (fig. 18) analagous to certain instruments described by A. de Mortillet (1). The javelin proper he says is comprised of a long handle of 76 cm. made of a stalk of caña brava (Guadua latifolia) which is perfectly smooth on the outside but full of an excessively light pith. One of the extremities is closed by a stopper made of a resistant wood, for that is what receives all the shock. Into the other extremity is fixed a chonta dart in the form of a very sharp triangular pyramid, about 22 cm. long: it is this part which is poisoned.

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1. Adrien de Mortillet. "Les Propulseurs à crochet modernes et préhistoriques" (Revue mensuelle de l'Ecole d'Anthropologie de Paris, 1st year, VIII, August 15, 1891, page 241.

12: Rivet--598 [2] (no date) 1907 Jívaro
116, 411

The spear-thrower is made of a piece of wood about 69 cm. long, with a groove hollowed on its upper side to receive the handle of the javelin; the rear end of the latter butts against the edge of the spear-thrower. The spear-thrower has a hole on its lower surface at the junction of its posterior and middle thirds, where the Indian puts his index finger in order to throw the javelin, as the illustration shows. The complete apparatus measures about 1 meter long.

18: Hermessen--442-443 (No date) 1917 Jivaro
116, 411

"The bodoquera, or blow-pipe, whose manufacture has been described by Simson, (20) was from eight to ten feet in length. The darts [443] used in it were about ten inches long, a little over one-sixteenth of an inch thick in the middle, tapered to a fine point at either end and made out of the rib of the leaf of the chonta palm (Bactris ciliata). These were held in a quiver fashioned out of a length of bamboo, to which was fixed a spherical gourd, filled with the very light floss of the silk-cotton tree (Eriodendron anfractuosum) for tipping the darts to fit the bore of the blow-pipe. (21) The poison-pot was made of half of a small gourd and had a cover or lid attached to it. The poison was a thick, black, viscous compound, its principal ingredient being the juice of the plant Strychnos toxifera. Captain Whiffen speaks of the use of the same poison by the Huitoto tribe of the Issa (Putumayo) and Yapurá Rivers. (22)"

"20. Op. cit., p. 155.

21. Cf. H. W. Bates: The Naturalist on the River Amazons, Everyman's Library edition, London, 1914, p. 302.

22. Op. cit., pp. 144-145."

25: Vigna--43[3] (no date) 1945 Jivaro
116, 411

The weapons which the Jíbaro uses at present are: the shotgun or rifle purchased from the white people. With the shotgun he hunts the mountain animals and his enemies. In former times his weapon was the lance made with the wood of "chonta" or with iron bought from the whites. They are very skilful with the blowgun; and by means of poisoned arrows which they hurl a distance of twenty to twenty-five meters, they hunt small and large animals. The children are very dexterous in the handling of the blowgun.

The blowgun (ǒm) has a length of 2.5 - 3 meters. On its outside it is tapering from the bottom toward the top. At the bottom there is usually a straight mouthpiece made of bone. The blowgun is made of chonta wood cut of two longitudinal halves. In each half a semicircular channel is crudely cut. Each half is then tied over a tight rope which is smeared with water and sand. By moving the half of the blowgun back and forth on this rope, the channel is made smooth by the action of the sand. After the two halves have been prepared in this manner, they are taken off the rope and united after a cleaning process. The two halves are held together by a sort of bast which is wound in spirals from one end to the other. A layer of resin (pengái) is smeared over the bast. I observed how the Indians, in order to smooth the resin, heated a smooth piece of pottery over a fire and moved it lightly over the resin, which thereby is caused to melt to an even surface. Near the mouthpiece each blowgun has a sight (ompomió), consisting of a short narrow piece of bone which is pasted on to the resin in a longitudinal direction.

26: Brüning--64 [3] (1902) 1928 Jívaro
116, 411

The thin splinter of the wood of two palm trees, kungúk (i) and cincúk (i), is used as a missile (çéncak). Pieces about 20 cm. in length are cut off from these palms, and from these pieces thin splinters are cut lengthwise. The darts are smoothed by scraping with a knife, and one end is shaped into a point. As a rule, these points are poisoned with utši, especially the darts used for larger animals. This poison is imported in thin bamboo containers from the Ucayali. The rubber collectors along the Ucayali River bring the poison to Iquitos and Barranca from where it is brought upstream on the Marañón River. Some of the Indians make this trip with the express purpose of obtaining this poison. The Aguaruna Indians themselves prepare a poison which they call çeác, but they do not regard it as effective as the utši.

In order to make the poison ineffective in animals that are to be eaten, the Indians right away rub kitchen salt into the wound.

The arrows are kept in a quiver made of thick bamboo (tónta); therein is a bundle of straw tšipáti) which is especially prepared for this purpose. The straw prevents the arrows from falling out even if the quiver be turned upside down. The quiver is carried around the wrist by means of a loop. A totuma fruit (called máti in the Quichua language) is fastened to the quiver by means of a string. The totuma fruit is stuffed with the wool of the balsawood tree (wambók, a Quichua word). The wool can be withdrawn through a small round opening. If an arrow is to be used, the hunter takes out a little of this wool, winding it round the obtuse lower end of the arrow so that it will fit exactly into the opening of the blowgun. Prior to this a notch is made about three centimeters below the point of the arrow [65] so that the poisoned top will break off when it enters the animal. The notches are made with the sharp teeth of some animal which I was not able to identify. The lower jaw of this animal dangles from the quiver. The term for the tool is páni . In order to be able to clean the blowgun, the Indians always carry at the side of the quiver a long rolled-up piece of a flexible reed which, at one end, is equipped with a tuft of vegetarian wool (hápik).

26: Brüning--66
116, 226, 262, 411

(1902) 1928

Jívaro

In addition to meat the Indians eat a great deal of fish. Fishing is done by a variety of methods. They obtain the largest catch when they stupefy fish. For this purpose they use two plants, each one separately. One is the herbaceous plant másu, the other the bark of a liana (tímu). Both are pulverized and thrown in quiet coves of the rivers and brooks. The narcotized fish soon come to the surface where they are speared with long pointed chonta sticks (šikít). These fishing spears have a circular cross-section and a diameter of about 2 cm. Their length is 3 - 3.5 m.

When the rivers are on the rise, the Indians are quick to make an estacada (a sort of grill) of bamboo and place it across the mouths of the brooks and inlets. When the waters are falling again, the fish remain behind these estacadas. The natives even use fish-hooks which are a desirable article of barter.

These are the main articles of food in the realm of fauna. According to the rubber collectors, the natives are said to eat a large beetle larva which occurs in decaying wood.

While the blowgun is their hunting weapon, the spear is their war weapon. At the same time, the spear is part of the etiquette, for a man would never leave the house without it, even if he would visit only his nextdoor neighbor. It is the weapon that signifies masculine dignity.

Spears with iron points were generally in use when I visited the Indians. The point (see Figure 7) has a socket at the bottom. The shaft is fastened into the socket with the help of resin. The spear or lance has a length of 2 1/2 - 3 1/2 meters. They are said to obtain the iron points by way of barter from the Indians along the upper Senepa. The points are said to come from Ecuador. The spear with the iron point is called nánki by the Indians. Formerly spears were used shaped out of the wood of the chonta palm, and they still occur in isolated instances. The shape of their point is the same as the iron one, but its cross-section shows a somewhat concave outline. Shaft and point are made out of one piece. These chonta lances are called angös.

Figure 7.

Iron Spear Point

26: Brüning-- 71-72
116, 411, 177, 436

(1902) 1928

Jívaro

In all the tambos I found Winchester rifles which they had
collectors by barter for rubber. But since the Indians mos
[72] shot to go with it, these rifles are for the most part orn
of fact, the Indians are not too fond of rifles since, they mai
the game off.

In their tambos they have special stands where all the wea
and with great orderliness. Especially the blowguns have to
otherwise they would bend.

d from the rubber
time do not have any
l pieces. As a matter
heir report chases

e vertically placed
in a vertical position,

28: Tessman--351 (No date) 1930 Jivaro
116, 411, 224

Karsten (in his Contributions, pp. 36 ff.) reports on the hunting customs. My own information is the following: The blowgun (Aguaruna: úme, Atschual: úombi) is wound with liana fiber and has no resin coating. The small sight is made of resin. The mouthpiece is a piece of tubular bone of the white-bearded peccary. They clean their blowguns with a liana which has a cotton tuft in the middle. The small arrows (tsínsak) have points that are smeared with poison (tsías); the Atschual Indians buy the latter from the whites. We gather from Karsten's reports (in Beiträge etc., pp. 1 ff.) that only a few Chiwaros have the knowhow for preparing this poison. There are many prescriptions in connection with the preparation of this poison. According to my information, the quivers are made of bamboo. They call the quiver hinduk. The little arrows are reproduced by Rivet in L'Anthropologie, XVIII, p. 366. The bamboo-quivers have a tree-calabash at the bottom; the Chiwaro-Makas Indians have such a calabash also on top.

28: Tessman--355 (No date) 1930 Jivaro
116, 411, 531

The spear (Aguaruna: nánki, Atschual: nángi) is their main weapon of war. It has an iron point, which is as a rule imported from Ecuador. Formerly they may have had a wooden point (palm-wood). The shaft (at least the Makas shaft) is a fine piece of craftsmanship (see Plate 61). I am inclined to regard these shafts of a brightly shining brownish-red and decorated with carved patterns the best artistic accomplishment of the Chiwaros. Next highest I rate the execution of the inside of their bowl-plates, and third in line of artistic achievement are the feathered circlets and the other body ornaments. There are also spears made of one piece of wood (see Plate 65, upper right).

In his book Blood Revenge etc. Karsten gives a description of war and war methods. Karsten tells us that the Chiwaros used to have spears with bone-points. The bone was later replaced by iron.

They do not have slings for the hurling of arrows. No slings at all. No clubs. A long time ago they started to import a dagger with short haft and a long, wide iron blade. (See Plate 59, Fig. 6) The dagger is worn in a scabbard on a belt. Two hollowed-out pieces of wood form the scabbard.

The Aguarunas, Uambisas and Makas Indians have a round shield (tandara, according to Karsten, see his Blood Revenge, Plate 4, right). It is not decorated with feathers. The wood is neither polished nor decorated. It gives the impression three disks were placed one on top of the other, the one in the middle being the smallest.

M.Macnair E-9 (1956-1957) 1962 SD9 Jivaro SD9

Substance of information to talk about supernatural or personal matters was in part overcome by paying them well for the time they put in. Payment was commonly in the form of black gunpowder, percussion caps, lead shot, glass and metallic beads, and cloth. In localities of Protestant and missionary settlements, money was used as well. In visiting strange households, I found that a gift of an ounce or two of gunpowder invariably resulted in a friendly stay, since almost all Jivaro men today possess firearms and must periodically replenish their supplies of ammunition. Leave-taking in the more outlying parts of the tribal territory typically involved assuring the host of my future return and "taking orders" for additional types of trade goods to be brought on the next visit. Thus, my host viewed my continued friendship to his advantage and an amicable departure always occurred, despite the fact that I was often leaving directly (with gunpowder and other goods) for a household or neighborhood with which he was feuding.

The following summary of soul beliefs is presented with two major reservations. First, as a summary, it omits consideration of the high degree of personal variability which is so characteristic of this population. What is presented here is a consensus of the views of men who were looked upon as experts in the field of religious beliefs and practices by the other members of the tribe. Second, I do not claim to have completely mastered the intricacies of Jivaro supernatural concepts; what is presented here should be viewed as a progress report on our knowledge of Jivaro soul beliefs. I fully expect additional field research to result in refinements of some of the statements presented here.

The 4,500 to 5,000 Jivaro proper live in a dense tropical rain forest environment under the hilly terrain at the foot of the eastern slope of the Ecuadorian Andes. The main source of food is shifting horticulture, with sweet manioc the chief crop. Hunting and fishing also have important roles in the economy. The basic economic and social unit is the nuclear family which most commonly occupies a house by itself. Such houses are scattered throughout the forest in very loose-knit neighborhood groupings, the Jivaro preferring not to live close together for explicitly-voiced anti-social reasons. Except in time of war, formal political organization is completely lacking at the neighborhood level and is never found at the tribal level. Suspicion and hostility are characteristic of the attitude toward fellow tribesmen, including many close relatives. Sorcery as well as murder by means of physical violence and poisoned food and drink are prevalent in the society.

Jivaro soul beliefs constitute one of the four major autonomous systems of verbalized thought so far noted in their culture. The other three are the system of crop fairy (*nunui*) beliefs, of witchcraft beliefs, and the kinship system. On a conscious level, each of these systems derives from independent assumptions and can be described as a logical unit in itself, though these conceptual systems may be functionally interrelated as an expression of subconsciously existing needs. Since belief in one of these systems is not explicitly based upon belief in another, an adequate understanding of Jivaro soul beliefs

32:Harner E-5 (1956-1957) 1962 SD9 Jivaro SD9

future generations of Jivaro. At the same moment that these arutam souls are "born," the second type of Jivaro soul comes into existence if the deceased person was murdered.

THE MUISAK[9]

The second kind of soul, the muisak or avenging soul, is closely connected with the arutam soul. Only a person who has had an arutam soul is capable of forming a muisak. Furthermore, a muisak comes into existence only when a person who has seen an arutam is killed, whether by natural or supernatural means. At the time of death of such a person his avenging soul is created and leaves his corpse through its mouth.[10] If one simply dies of contagious disease or of old age (the latter believed to be a rare occurrence), no muisak is created.

The sole reason for being of a person's muisak is to avenge his death. This soul therefore attempts to kill the murderer, or if this is not possible (due to the murderer having an arutam soul), a son or wife of the murderer. The muisak is occasionally distracted from this objective, out of jealousy, to kill instead a new spouse of his widow. Because of this latter danger, young men who have not yet acquired much arutam power tend to avoid marrying widows.

Technically, the avenging soul is only called a muisak while it is in the corpse, subsequently in the shrunken head trophy (*tsantsa*), or its immediate vicinity. When the human head trophy is not taken and prepared, the muisak is able to travel as far as it likes from the corpse and to form into one of three types of *iwanch* or demons. These three demons are forms of the natural non-human world that can kill a man. One is a particularly dangerous poisonous snake (*mukumpi*). Another is the water boa constrictor or anaconda (*pupi*) which can knock over the raft or canoe of the murderer and thereby cause him to drown in the rapid waters of one of the numerous fast-flowing rivers and streams of this hilly country. The third form is a large tree in the forest which falls on the victim and crushes him. These are the three traditional forms of death in Jivaro society which might be called "accidental" in other cultures. Since the introduction of the steel bush knife or machete and of firearms, a belief has been growing that a muisak can enter into these items to cause an "accidental" fatal wound. The Jivaro view slight self-inflicted wounds as true accidents, but grave or fatal self-inflicted wounds are always believed to be the results, respectively, of murder attempts or murders through supernatural mechanisms.

Before the avenging spirit or *iwanch* kills the murderer, it sometimes appears to him in the form of a man or a jaguar while he is sleeping. The sleeper tries to seize his firearm or lance (which he keeps on the bed beside him at night) to kill the apparition. Failure to do so will result in the demon eventually succeeding in killing the person. Sometimes this *iwanch* fails in its assassination attempt, only wounding or injuring the intended victim. In such cases, the victim becomes a permanent invalid.

When the demon has performed its act of vengeance, it then appears in

/334 cont./

628 now retreating attackers, and thus new members all too easily become involved in the endless chain of blood revenge.

The terrible custom demands ever new, ever more victims, all security must disappear, every individual constantly [342] lives in danger of being ambushed; there is a general and perma- [574] nent state of war. Hence the arrangement of the houses, one [576] door of which can be used for flight, while the battle rages at [231] the other; hence the customs mentioned at the beginning in connection with approaching a dwelling, for the protection of which, 628 in addition, a pack of half-wild dogs are kept. A quarrel be- 648 tween two families must lead to battles between whole tribes; larger groups of tribes become hostile to one another; war and battle become customary, a man's lifework. A longer period of quiet, of peace, must be unbearable for such a nation of warriors. Ambitious, bold leaders will easily find companions for joint war expeditions, the neighboring nations are attacked and plundered. Thus, these Indians are carrying on among themselves a war of annihilation which must gradually bring about [161] their own downfall. Severe depopulation is already noticeable [164] in the region of the Jivaros, and it is being accelerated by [175] epidemics, of the diseases introduced by the Europeans, which appear with great violence at times.

727 It may be that the Jivaros themselves do not place very much confidence in the truth of their own war reports, or perhaps there are other reasons for demanding positive proof of the executed blood revenge and courage, but this much is certain, only the one who can display the head of the enemy as a trophy is regarded as victor. Thus all the effort goes into beheading the enemy. This is easy in an ambush, but more difficult in a regular 726 battle. The warriors are armed with shield and lances and lately • 48 with large forest knives. The circular shield, carved out of a 714 single piece of soft and light wood, is about half as high as a man; the lance, made out of a thin, hard palm shaft (chonta) provided with a tip made out of bone or iron, is six to seven feet long or more. The troops advance close together, each man in a bent position protected behind his shield; the lance rests in the

726 /334 cont./
411 right hand, held close to the tip. By a slight, regular move-
719 ment of the right arm the long shaft, held horizontally, /335/
is set to swinging vertically in order to give the weapon mendi-
ous and force when it is suddenly thrust forward. Shield pressed
to shield, they fight man to man amidst loud war cries, each
tries to protect himself, each tries to discover a weakness of the
opponent, without overly exposing himself to the stones thrown
by the women and children. If a lance thrust hits its mark and
the enemy is wounded and turns to flight, the shield is thrown
726 away, for now it is a matter of getting the head. For this
302 reason the men wear long hair. The courageous warrior offers
(554) his conqueror the possibility of grabbing him by the hair. Long
[129] hair is therefore considered the mark of the warrior, of the
free man. women, children, and the few war captives must
727 cut their hair. If a head is captured, it is brought in triumph
[796] to the house, where the trophy undergoes proper preparation.
This is an important religious ceremony. The skin of the head
is taken off, eyes and mouth are sewed up. hot stones are put
in the sack of skin thus obtained, by means of which the skin
dries out and shrinks. smaller and smaller hot stones are used,
until the head, completely dried, is reduced to the size of a fist.
[784] Such preparation, which the happy possessor must perform him-
[269] self, is said to take eight days. During this entire time he may
use his hands for no other work and he must be fed like a child.

727 Once the trophy is ready, a great festival is arranged,
796 for which a special festival hall is erected. all the friends and
273 acquaintances help with the construction and bring hospitality
[574] gifts. The principal thing is the preparation of the intoxicating
[431] drink from the yuca root in order to spend days in senseless
drunkenness. The yuca is chewed by the women and left in large
containers to ferment. The drink thus obtained has a pleasant
taste at first, between almond milk and lemonade, but becomes
strong and intoxicating with increasing fermentation.

727 friends from far and near gather for the festival, adorned
796 with bright feathers, with long earrings fashioned out of the shiny
(237) wing coverings of large beetles, with prettily plaited hats or,
[301]

34 Harner E-6, 9 (1956-1961)1973 SD9 Jivaro SD9

124 Informants' accounts were continually cross-checked and contradictions called to their attention individually. An informant, when thus confronted with a contradiction, and with his reputation for knowledge and veracity at stake, generally provided elaborative supporting detail.

Informants were ordinarily well paid for the time they [465] spent. Payment was commonly in the form of black gun- [436] powder, percussion caps, lead shot, glass and metallic beads, [999] and cloth. Near Ecuadorian and missionary settlements, money was used as well. When visiting strange households 123 it was found that a gift of an ounce or two of gunpowder 124 invariably resulted in a friendly stay, since almost all Jivaro • [411] men today possess firearms and continually need replenishment of their supplies of ammunition. Leave-taking in the more isolated parts of the tribal territory typically involved entering the host of my future return and "taking orders" for additional types of trade goods to be brought on the next visit. [628] Thus my host viewed my continued friendship as being to his advantage and an amiable departure always occurred despite the fact that I was often leaving directly (with gunpowder and other goods) for a household or neighborhood with which he was feuding.

124 My chief mode of communication to obtain detailed infor- [191] mation was through interpreters. However, unlike my pred- [795] ecessors, I exclusively used for this purpose Jivaro men who had learned Spanish as a second language at mission stations. I used a variety of interpreters, eventually working mainly with those who had proven themselves the most accurate, [122] reliable and intelligent. As my own knowledge of the language progressed, I was able to check up on much of that which they interpreted, but even before that stage the comparison of different accounts on the same subject by using different interpreters and informants made substantial veri-

14 Marner E-0. 9 (1956-1969)1973 SD9 Jivaro SD9

The Jivaro have an oral tradition regarding the circumstances of the initiation of this peaceful contact:

In the old days, all the Jivaro [*untsuri huará*] lived near the Río Pastaza. Then two Jivaro went up the Río Upano Valley and found many monkeys. Near the Río Tutanangoza, they encountered two Macabeos, who wore kilts like the *huará*, but carried machetes. The Macabeos spoke a Jivaroan dialect different from theirs [Achuara?]. The Macabeos asked, "Do you have pigs?" The Jivaro men said, "Yes." So the Macabeos gave one of the Jivaro a piece of a machete blade and told him to bring pigs to Macas. The two *huará* returned downstream and told their people:

"We have encountered an animal, or perhaps it is a person, who wears a kilt. It gave us this machete."

All the people tried out the machete blade fragment, happy with how well it worked compared to their stone axes. So they killed a few big pigs and gave the meat to some old women to carry to Macas. Two men went with the old women on the trail, but did not enter Macas with them. They were afraid of the whites, and thought that perhaps they would kill them. The men waited on the trail for the old women to return.

When the women arrived in Macas with the meat, the whites gave them a shirt, four arm lengths of cloth to make a dress, and one piece of machete. One of the old women later said when she returned home, "They frightened me because they have such large houses and so many people."

After two days, the old women came back down the trail, surprising their people, who had decided that they had been killed. The old women told them that the Macabeos had many machetes and much cloth which they wanted to exchange for pigs.

So, after a few days, four men left for Macas, carrying pigs. When they arrived, the whites sat them on stools and served them beer of sugar cane. The Macabeos gave the men two

34:Harner E-4. 5 (1956-1969)1973 SD9 Jivaro SD9

new permanent white settlement in the Jívaro region since 1599. These mestizos seem to have been tolerated by the Jívaro as a source of Western-manufactured goods, especially machetes and steel lance heads, the latter specially manufactured in the adjacent highland province of Azuay for the Jívaro trade.

In 1887, the Dominican order founded a Catholic mission at Macas, but abandoned it in 1898 without apparently having had much effect on the Jívaro.[28] A Protestant mission of the Gospel Missionary Union was established at Macas in 1901, but it likewise was soon terminated.[29]

The last two decades of the century were also marked by visits to Macas by gatherers of cinchona bark and rubber. These commercial collectors generally employed Macabeos as guides and intermittently bartered guns and other trade goods to the Jívaro in exchange for latex or other natural products. However, the rubber trade existed only in an attenuated form in this remote portion of the Amazon, partly because of the problem of transporting the rubber in the absence of navigable rivers.

Although the Amazon rubber boom soon began to decline, other new inroads into the western Jívaro territory were shortly made by the Catholic Salesians, who founded missions at Méndez, near the juncture of the Río Paute and Río Upanó, in 1914, and then at Macas in 1924.[30] Except for these missionaries, however, white colonization of the region was still slight. Even Macas remained so isolated from the outside world that the first horse was not brought into the village until 1928, when a man carried a colt on his back from Riobamba, according to local informants.

In 1932, Macas was described by a visitor as follows:

> Macas stands in the midst of a highly fertile district, and is really a group of small farms supporting about five hundred

34 Harner E-6.9 (1956-1969)1973 SD9 Jivaro SD9

came down in large numbers to try their luck at gold mining. Unlike their sixteenth-century predecessors, they did not usually attempt to coerce the Jívaro as conquerors, but came as individual prospector-miners. The fact that the Jívaro were fairly well equipped with firearms by this time,[80] probably contributed to this situation. When conflicts with the Jívaro occurred, they were usually settled, one way or another, directly by the individuals involved.

The gold rush reached its peak in 1937, at which time the boom town of Méndez seems to have approached a population of about three thousand—far above that of Macas. Shortly, however, a decline in mining profits took place, and many of the white prospector-miners returned to the highlands. Others remained to settle permanently in the Upano, Paute, and Zamora valleys.

During these gold rush years, the first horse trail had been built into the Jívaro region, connecting the highland province of Azuay with Méndez, and after the boom was over, the trail was kept open by the Salesian missionaries. Gradually, Azuay mestizos, some of them ex-miners, began to immigrate into the region with their families to raise cattle, which they could then drive out over the trail to the city of Cuenca to obtain cash. The local Jívaro at first generally welcomed the settlers as a new source of factory-manufactured goods, particularly machetes and muzzle-loading shotguns, which they received for clearing the forest to make pastures for the colonists' cattle.

Cattle raising proved successful, and soon more colonists arrived. As their numbers increased and they were augmented by military and police units, their fear of the Jívaro diminished and they began seizing the Indians' garden clearings for pastures. The Jívaro say that over half of their Upano Valley population also died at this time of epidemics of contagious

34:Harner E-4.5 (1956-1969)1973 SD9 Jivaro SD9

barriers, intra-tribal feuding between neighborhoods has contributed significantly to the insulation of the interior Jívaro from contact with the frontier whites. Internal hostilities have discouraged many men from traveling more than ten or fifteen miles from their homes. Many have not been willing to risk traveling that far, for fear of assassination by personal enemies or enemies of close relatives. At the time of the author's original fieldwork in 1956–57, such fears produced a situation in which relatively few of the men deep in the interior had even briefly visited the region of Ecuadorian colonization.

The relative isolation of the interior Jívaro, however, had not prevented them from obtaining increasing quantities of machetes, steel axes, and shotguns. By means of neighborhood-to-neighborhood relays of native trading partners, these products of Western civilization were passed from the frontier Jívaro into the most remote parts of the tribal territory. All of the interior Jívaro neighborhoods were thus supplied with steel cutting tools, firearms, and ammunition without the necessity of coming into direct contact with the white population.

The growth of this trade in recent decades had been made possible by the increasing involvement of the frontier Jívaro in the Ecuadorian socio-economic structure. The frontier Jívaro, primarily through their employment by Ecuadorians in manual labor, had acquired quantities of factory-manufactured goods. At the same time, there was a shortage of native-type goods among the Jívaro on the frontier, partially because of the near exhaustion of local game, which supplied feathers and bird skins for ornament. The interior Jívaro, in contrast, had a much more abundant supply of game and native-produced goods, but a greater scarcity of steel cutting

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9

poses a problem for Indians engaged in collecting a specific kind of wild fruit or hunting a particular species of game. This situation is aggravated for the hunter by the fact that virtually all of the Jívaro territory has been hunted efficiently for a long period of time, with the result that game is not as abundant as in regions unoccupied by the Indians. This fact was particularly driven home to my Jívaro companions and me in 1969, when, in traveling through an unhunted "no-man's-land" between the Jívaro and the Achuara along the lower Río Cangaimi, which had not been exploited because of the enmity between the two groups, we encountered unprecedented quantities of monkeys and birds.

The Jívaro, under the circumstances, do not normally find collecting a very rewarding activity, and, in hunting, they cannot afford the luxury of specializing in a few large game animals, such as might be possible in some other environments. The blowgun, suitable for hunting game ranging from small birds to large monkeys, therefore, becomes a very important food-securing weapon.

Mammals especially important to subsistence include peccary, agouti, and such monkeys as howler, squirrel, capuchin, and black. Peccary and monkey are valued for both their skins and flesh, while the agouti and armadillo are utilized generally for the meat alone. Most species of birds, except for carrion-eaters, are hunted almost daily as sources of food and for their plumage. Birds most often killed include species of parrot, toucan, dove, and curassow. Both the large and small species of toucan are particularly prized for their pelts and feathers; jaguar, ocelot and other feline species are commonly hunted for their skins (see Plate 9). Rabbits and deer, although present, are never hunted for food, the former because they are "like rats," the latter for supernatural reasons (see p. 150).

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9

Stalking is the chief hunting technique, both for arboreal and ground-dwelling creatures. Monkeys and large birds are usually stalked with the blowgun (see Plate 8) and darts poisoned with curare (unpoisoned darts suffice for small birds). A poisoned dart is notched around its tip so that it will break off if a monkey tries to remove it. The hunter, usually alone, but sometimes with a male companion, waits until the monkeys are calling among themselves before stepping stealthily to the base of the monkeys' tree and blowing. The maximum effective range of the blowgun rarely exceeds 100 feet, but the silence of the weapon often permits the hunter to shoot several individuals before the troop becomes alarmed and swings off through the trees. The shot monkeys drop from the trees within a few minutes. The blowgun is not considered satisfactory for hunting ground-dwelling creatures, which are killed instead with shotguns and old Winchester .44 carbines, loaded either with shot or, rarely, in the case of the latter weapon, with bullets. Shy birds, such as the toucan, are hunted more with firearms than with the shorter-range blowgun.

The blowguns and curare dart poison are obtained almost entirely by trade from the Achuara, the Jivaro acknowledging themselves to be inferior blowgun makers and stating that they do not possess the right plants in their region to produce first-rate poison. The blowguns themselves are about seven feet long and made of a single piece of chonta palm which has been split down its length into two pieces which are grooved with great precision and bound together with fiber strips cemented into place with a black beeswax coating.

Blowgun darts are easily made, in a fraction of a minute, by whittling the slender ribs of ivory nut palm leaves. In hunting, the darts are carried in a quiver around the neck or

54 Harner E-4. 5 (1956-1969)1973 SD9 Jivaro SD9

stuck through the hair over the ear, wrapped at one end with kapok to provide resistance when blown. The speed with which the darts are produced makes the blowgun an extremely economical weapon to operate compared, for example, to the bow and arrow, with which the Jivaro are not acquainted. Arrow making, as I have observed among the Combo Indians of the Rio Ucayali region of eastern Peru, is a comparatively time-consuming process, and there is always the danger of losing arrows in the treetops when hunting monkeys or birds. Blowgun darts, on the other hand, are so easy to make that their loss means little to the hunter. Also, from what I have observed, blowguns tend to be more accurate in hunting small birds at close range. A final hunting advantage, compared to the bow and arrow, is that the motion involved in using the weapon is so slight, and the flight of the darts so unnoticeable, that game is rarely disturbed if the hunter misses his target. Of course, compared to a firearm, the blowgun is even more economical, but limited in range and not sufficiently fast-acting on large or dangerous game.

Dogs are commonly used in hunting peccary, jaguars, and ocelots, although a hunter, armed with a shotgun or carbine, may stalk them alone. When taking a dog on a peccary hunt, the man is accompanied by a wife, who handles the leashed dog, and also is frequently assisted by another male hunter. Even in hunting dangerous felines, only one dog is used to tree the cat, but up to a dozen people may participate.

Blinds, game calls, and traps are the main supplementary hunting devices. Conical blinds, made by sticking palm fronds into the ground, may be constructed at feeding places of toucans, agouti, or other creatures. Game calls are employed both in blinds and when stalking. Hunters call parrots without the aid of any devices, but blow against the

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9

beer making, while shorter ones store the water with which the men rinse their mouths upon arising and after eating. Other gourds are cut in half and perforated to serve as sieves in straining manioc fibers out of the beer. Tree gourds are used by men as canteens for carrying the thick beer mash when hunting or traveling far.

Three kinds of baskets are made, all by the men: a plaited openwork basket used primarily for carrying and storing food; a wickerwork type for carrying fish; and a relatively insect-proof plaited and double-walled basket with a banana leaf lining and a cover for storing featherwork and other personal effects. Matting is unknown.

Virtually every adult male possesses at least one firearm for hunting and fighting. While there are a few ancient Winchester .44 carbines obtained from the Achuara, almost all the guns are Spanish-made muzzle-loading shotguns of recent manufacture secured primarily from trading partners dwelling in the region of white contact in the Río Upano Valley.

Most of the Winchester carbines, although originally pump-action weapons, are so worn that they can function only as single-shot weapons. For fighting, they are loaded with highly valued .44 pistol cartridges obtained through native trading partners from the Achuara, who in turn secure the cartridges from other trading partners in Peru. For hunting, the cartridges are simply reloaded with black powder and shot, and the cartridge primer is replaced with the type used on muzzle-loading shotguns.

The shotguns, percussion-cap weapons usually with a 20-gauge bore, are much preferred over the Winchesters for hunting and also are much more plentiful throughout the tribe due to their steady acquisition by means of the native trading partnerships. They are loaded with black powder

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9

and iron shot of assorted sizes obtained from the frontier Jívaro, or loaded with the hard seeds of the *etsa* tree, or even river gravel, when iron shot cannot be obtained.

Fighting is rarely done with weapons other than firearms, but occasionally a man kills an enemy from ambush with a plain palm lance or a "shotgun" lance to demonstrate his valor. The "shotgun" lance has a tip made by chopping off the barrel of a worn-out shotgun with a machete, beating the base of the barrel into a point, and inserting a palm-wood shaft into the muzzle end of the barrel. A few old men also carry lances with iron tips obtained years ago by trade from Gualaquiza. Some of these older men also have crude wooden shields in their houses for use in the *tsantsa* feast ritual. Machetes and the less common trade knives are also sometimes employed as fighting weapons.

Men stretch and dry skins of wild boar, jaguar, ocelot, and other felines for trade. Monkey hides are used for making men's shoulder bags. Both sexes manufacture thread, string, and braided rope. Thread is made from the inner bark of the *tsaké* tree, and string from the inner bark of the *kumaí* palm. Men's shoulder bags of knotted and knotless netting are made of this inner bark string using large bone needles.

Weaving, done in almost all houses, is exclusively a man's task. Men, compared to women in Jívaro society, tend to have much more leisure time, which may help account for the fact that they do the spinning, dyeing, and weaving. When not hunting or clearing forest, a man likes to sit in his end of the house, either quietly alone or conversing with visitors. In either case, spinning and weaving allow him to occupy his hands with a pleasant craft which can be interrupted or picked up again as he desires. The textiles he makes are extremely durable and thus there is usually no urgency attached

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9

man, two wives, and seven children; or a man, one wife, and three children. Often another relative, such as the widowed mother or an unmarried brother of the head of the household, also resides in the dwelling. Upon marriage of a daughter, the house's population is augmented by the son-in-law (*awe*), who will tend to remain until the birth of his wife's first child. Thereafter, according to the norm, the son-in-law and his family dwell in a new house nearby.

Sometimes matrilocal residence is avoided altogether when the suitor substitutes the gift of a shotgun to his father-in-law, instead of performing the more common bride-service. This substitution of bride-price for bride-service tends to occur in cases where the suitor feels that a period of matrilocal residence would be a liability, rather than an asset to him, e.g., when his bride's family lives in a neighborhood containing a number of enemies of the suitor's family or when he is already married and must take his bride home with him.

The man is formally head of the household and also informally seems generally to dominate his family. He is responsible for protecting his wife (wives) and children, for hunting and fishing, for clearing the forest for garden plots, and for cutting and bringing in fire logs. He also does some very limited garden chores and weaves the family's homemade garments. His wife (wives) is responsible for the overwhelming majority of the agricultural tasks, as well as for cooking and beer preparation, pottery making, and tending the children, chickens, and pigs, if any. When a son-in-law is resident in the household or living nearby, he helps his father-in-law at his various tasks, and also contributes game and firewood to his father-in-law's household. The son-in-law's wife also often helps her mother, even when resident in another neighboring house. A man and his son(s)-in-law

34:Harner E-4.5 (1956-1969)1973 SD9 Jivaro SD9

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8. Hunter returning home with a howler monkey which he shot with a blow gun (on his right shoulder) and poisoned darts (Rio Cusuimi, 1956–57).

14 Harner E-4. 5 (1956-1969)1973 SD9 Jivaro SD9

own self-interest. By the time a *ti kakaram* is achieving such status and power, he tends to be already elderly, and, instead of continuing to lead expeditions himself, will usually send his sons or sons-in-law.

A famous *kakaram* sometimes may even be sent an invitation, through intermediaries, to kill someone in another tribe, usually an Achuara. The invitation sent by the non-Jivaro carries with it the tacit understanding that the *kakaram* and his followers, since they are from another tribe, will conduct themselves in the form of a war raid, rather than the intra-tribal assassination expedition which goes after only a single victim. Thus they are expected to attack the entire household of the intended victim, taking heads and seizing women. The inviter is usually someone with great hatred for his enemy who views the bringing in of outsiders to do the job as an opportunity for retribution beyond anything that he could do directly. He will guide the *kakaram* and his war party to the house of the victim and, after the attack, one of the grateful head-takers will give their guide a shotgun as a token of appreciation.

The co-operation provided by such non-*untsuri huarā* inviters has sometimes made it possible for the Jivaro to travel incredibly far to kill. In one fondly remembered case, the assistance given by a *tsumu huarā* (Huambisa) inviter-guide made it possible for a Jivaro expedition to pass down the Río Santiago by canoe through the entire Huambisa tribe and to wipe out most of an Aguaruna household on the Río Marañon below the Pongo de Manseriche.

Shamans and Shaman Hierarchies

Shamans (*uwishin*), more numerous than outstanding killers, often wield considerable power in the neighborhood. The

14 Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9

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• 411
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[415]
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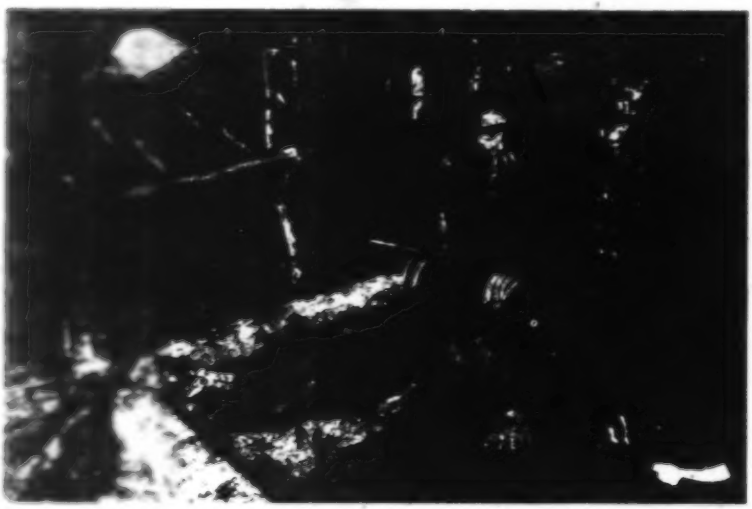
16. Visitors to an uncompleted house receiving manioc beer prior to engaging in conversation with the host. Guns are always carried on visits and prominently displayed (Río Cusuimi, 1956–57).

[353]

17. Host in typical pose when receiving visitors. Hand is cupped over mouth and shotgun cradled in lap (region between the upper Río Macuma and the upper Río Cangaimi, 1956–57).



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34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9

ing soul is created and leaves his corpse through the mouth.[10] If one simply dies of contagious disease or of old age (the latter believed by the Jívaro to be a rare occurrence), no *muisak* is created.

The sole reason for existence of a person's *muisak* is to avenge his death. This soul therefore attempts to kill the murderer, or if this is not possible (due to the murderer having an *arutam* soul), a son or wife of the murderer. The *muisak* is occasionally distracted from this objective, out of jealousy, to kill instead a new spouse of his widow. Because of this latter danger, young men who have not yet acquired much *arutam* power tend to avoid marrying widows.

Technically, the avenging soul is only called a *muisak* while it is in the corpse, subsequently in the shrunken head trophy (*tsantsa*), or its immediate vicinity. When the human head trophy is not taken and prepared, the *muisak* is able to travel as far as it likes from the corpse and to form into one of the three types of *iwanči*, or demons. These three demons are forms of the natural non-human world that can kill a man. One is a particularly dangerous poisonous snake (*makanč*). Another is the water boa constrictor or anaconda (*paṇi*), which can knock over the raft or canoe of the murderer and thereby cause him to drown in the rapid waters of one of the numerous fast-flowing rivers and streams of this hilly country. The third form is a large tree in the forest, which falls on the victim and crushes him. These are the three traditional forms of death in Jívaro society that might be called "accidental" in other cultures. Since the introduction of the machete and of firearms, a belief has been growing that a *muisak* can enter into these items to cause an "accidental" fatal wound. The Jívaro view slight, self-inflicted wounds as true accidents, but grave or fatal self-inflicted wounds are always believed to be the results, respectively, of murder attempts or murders through supernatural mechanisms.

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9

With the entrance of the raiding group into the alien tribe's region, strict silence is maintained and scouts are sent ahead. The latter, usually five in number, snake back and forth through the forest across the trail, to avoid being surprised by Achuara hostiles. The main body of men follows the scouts, but simply keeps to the trail itself.

At nightfall, the entire party stops, while the scouts remain awake, camped at an outpost on the trail ahead. The main body constructs lean-to's and sleeps, except for one man who is sent several hundred yards ahead to act as a sentry until about 1 A.M., when he returns. Then the main group arises at about 2 or 3 A.M., eats, and continues on the trail. When they reach the scout outpost, the scouts are relieved by a new group which proceeds on ahead of the main body. The former scouts go back down the trail to sleep in the lean-to's where the main party had spent the night.

The actual attack is carried out only on a house where the scouts find the enemy unwarned. Usually a single house is attacked, but sometimes two may be assaulted simultaneously, and the attackers may use palm-wood thrusting lances, bayonet-style, to supplement their muzzle-loaders. Often the roof of the house is set afire to drive the inhabitants out into the open. Heads are taken of all victims, regardless of age or sex. A man may seize an Achuara girl or woman as a captive to try to take her home to be an extra wife, but usually he is unsuccessful in this because one of his companions kills her on the homeward trail to secure a head trophy.

The capture of women sometimes goes in the other direction, and can involve children as well. A male informant recounted that when he was a small child, the Huambisa attacked his house in the Río Yaupi region, killed his father, and captured his mother and himself. After several years in their captor's household, they escaped and, after an arduous jour-

434 Harner E-4. 5 (1956-1969)1973 SD9 Jivaro SD9

did" or "we do it that way because other people would laugh at us if we did it differently." The Jívaro seem proud of their ability to judge for themselves the usefulness of continuing or changing their traditional behavior on very pragmatic and personal grounds. All this does not mean to convey the idea that the Jívaro are natural anthropologists, but simply that their knowledge of the factors which influence the changes that they make as individuals should be respected sufficiently to be collected and included as useful ethnological data.

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The main variables introduced into interior Jívaro culture during the period studied were Western-manufactured trade goods, especially machetes, axes, and guns. Some machetes were acquired by the frontier Jívaro near Macas about a hundred years ago,[2] but very few reached the interior Jívaro by intra-tribal trade until the turn of the century, and even these were so scarce and valued that their blades were each split into fragments to permit their utilization by several households. The more efficient steel blade fragments were at first used in the same manner as the aboriginal stone axe heads, each machete piece being mounted into a wooden handle. After the 1930's, however, machetes became sufficiently abundant so that the need to split the blades into small fragments was eliminated. They also largely replaced by then the traditional palm-wood "machetes" used in cutting down garden weeds. Despite their fair degree of availability at the present time, steel machetes are still highly valued and are used for many years, long after they have lost their handles and have become worn down to a fraction of their former size. Today they are considered to be utterly indispensable tools by the Jívaro, who also have been able to acquire some single-bitted steel axe-heads, although in much smaller numbers than the machetes.

177 439 178 412 [411]

34 Harner E-4. 5 (1956-1969)1973 SD9 Jivaro SD9

ual garden plots tend to be smaller than those resulting from a large sustained effort by a group of neighbors.

Within the household, the basic aspects of life seem little changed except with regard to the amount of time men spend in land clearing and weaving. In recent decades, the time spent on these activities has been reduced, respectively, by the adoption of steel cutting tools and the acquisition of Western and Achuara cloth and articles of dress through trading partnerships. A man instead spends a larger percentage of his time simply relaxing in the house, going hunting to obtain skins for trade, and visiting other households.

The period of temporary matrilocal residence has become shortened in recent decades so that it now usually ends soon after the birth of the first child. Formerly, the couple commonly remained in the wife's parents' house until after the birth of the second or third child. The factors behind this change are not clear except that some informants said that in-laws were not getting along as well as they used to do in the old days. The occasional practice of avoiding temporary matrilocal residence and bride-service, by giving the bride's father a shotgun, is reportedly a recent development.

The introduction of firearms, starting slowly at about the turn of the century, constituted a major technological change in Jivaro culture comparable in importance to the adoption of steel cutting tools. At that time, during the height of the Amazon rubber boom, a few Winchester .44 caliber carbines were acquired by the interior Jivaro from the Achuara, the firearms being captured during head-taking raids. The acquisition of great numbers of firearms by the interior Jivaro, however, is a development of only the last three decades. The new firearms, which are muzzle-loading shotguns of Spanish manufacture, and possessed by virtually every adult male, have been acquired along with gunpowder and shot by trade

14 Harner E-6.5 (1956-1969)1973 SD9 Jivaro SD9

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from the frontier Jivaro. These firearms are still being 411
obtained in ever greater numbers. 439

The development of long-distance chains of trading part- 178
ners between the interior Jivaro and adjacent tribes is an 411
especially noteworthy change, mainly occurring since the end 438
of the Amazon rubber boom, about 1914–15. The impetus 439
for this development was provided by the fact that the end
of the rubber boom found the Achuara tribe, which had [441]
been much more involved in the rubber trade than the [249]
Jivaro, suddenly cut off from their supply of firearms and [313]
ammunition. At the same time, trade between the frontier [278]
Jivaro and the whites at Macas and Méndez was beginning to
develop significantly, and the Jivaro also wanted Achuara
products, particularly blowguns and dart poison. The essen-
tial result was that both the Jivaro and the Achuara found it
profitable to develop mutual trade. To the former inventory [317]
of products traded within the Jivaro tribe, such as salt and
machete blade fragments, were added new goods coming
from the frontier Jivaro on the west, and the Achuara in the
east. The new goods primarily have been firearms, gunpow- [412]
der, increased quantities of steel cutting tools from the fron- [237]
tier Jivaro, and featherwork, blowguns, and dart poison from [278]
the Achuara.

In connection with trading partnerships, a minor ritual has 178
been learned from the Achuara tribe. This is the ceremony 441
in which two men embrace each other, kneeling on a cloth, to 184
formalize a partnership relationship. Previously any contrac- 675
tual ritual was unknown.

The now universal demand among the interior Jivaro for 178
firearms and gunpowder has made the men of every neigh- 571
borhood extremely dependent on those persons who have
trading partners in neighborhoods nearer the regions of white [411]
settlement in the west. The intensification of the trading [441]

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9

178 growth of inter-tribal trading partnerships, whose partici-
721 pants and their relatives have a vested interest in the mainte-
441 nance of inter-tribal peace to protect the partners. Relatives of the traders threaten to apply sanctions against their own tribesmen if they should initiate war against the Achuara. The Achuara, who have the same interest in maintaining the trading system, similarly discourage inter-tribal raids against the Jivaro.

178 Winchesters and shotguns have almost entirely replaced
• 411 palm-wood thrusting lances as the chief combat weapons
726 both for offense and defense. Formerly, spears thrown with
[342] the spear-thrower were used along with thrusting lances in
[712] attacks, while poisoned blowgun darts and double-pointed palm throwing sticks were used in household defense, the
[714] latter being cast from now vanished house towers. Round wooden shields, formerly universally carried in combat, are likewise no longer used in fighting, due to their inadequacy
[796] against guns. The use of shields is now restricted to rare
[727] ritual functions, especially in the *tsantsa* feast. Such ceremonial feasts have considerably diminished in size and frequency as a consequence of the decline in inter-tribal head-taking raids.

178 Changes in house construction during the past few dec-
342 ades have been influenced primarily by the adoption of fire-
411 arms for fighting. Formerly, the roof of the house was
712 sometimes surmounted by a wooden defensive tower from
726 which missiles could be showered onto attackers. Today such towers have entirely disappeared, since the use of guns by attackers only made the position of defenders in the towers untenable.

At the same time, the use of firearms has encouraged the construction of breastworks of horizontally placed logs inside of house walls as a protection against gunfire. The

34 Harner E-4.5 (1956-1969)1973 SD9 Jivaro SD9

digging of foxholes in house floors is a related new development. The construction of double walls behind beds has become common to protect sleepers from assassins attempting to shoot between the palm staves of the house wall at night. The construction of escape tunnels has declined considerably since the lessening of inter-tribal warfare, for their prime function was to provide a means of escaping the wholesale attacks and sieges which only occur in the inter-tribal head-taking raids. Log signal drums are now also relatively rare, due to the adoption of firearms, whose discharge is sufficient in itself to alert neighbors when an attack occurs.

A decline has occurred in the last three or four decades in the numbers of pigs kept, which is ascribed primarily to the fact that *tsantsa* feasts now have become much less frequent due to the lessening of inter-tribal warfare. The raising of pigs was primarily directed towards having a large supply of meat for such feasts. The capturing and taming of wild animals and birds has increased, however, because of the demand for these by Jivaro trading partners to the west, who trade them to the whites of the frontier.

Hunting has become more important as an activity to procure skins and feathers for trade, although there is no indication that such specialized hunting has resulted in an increase of meat consumption in the household. The adoption of firearms has tended to increase the hunters' efficiency in killing rare birds, such as the toucan, which are prized for their plumage and are difficult to stalk at close range. Firearms also have facilitated the hunting of dangerous wild animals for their skins, especially the jaguar and peccary, which were formerly hunted with the lance.

Besides firearms, blowguns and curare dart poison are also utilized for hunting to a greater degree than was the case several decades ago. The intensified use of blowguns has

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9

178 been made possible by the development of trade with the
184 Achuara, who are the main regional producers of blowguns
278 and curare. Formerly, blowguns and curare could only be
• 411 obtained in small quantities by looting Achuara houses after
438 successful head-hunting raid.
[727]

In the case of fishing, no noticeable trends have occurred
178 except for a very minor increase in the use of hook-and-line
227 technique due to the acquisition of some steel fish hooks by
438 means of the inter-tribal trade network.

Wild food gathering has been marked by a decline in the
178 collection of the formerly important chonta palm fruit. This
222 decline in collection, interestingly enough, is attributed to
137 the introduction of the steel machete, whose efficiency, compared to the stone axe, made it easy for men to chop down chonta palms simply for their edible tips, thereby reducing the number of trees available as regular sources of the hanging clusters of fruit. In other words, the introduction of steel cutting tools, by contributing to the degradation of this wild food resource, decreased rather than increased food obtained from gathering.

479 Species of domesticated plants remain unchanged except
24 for two new additions, *papa china* and the onion, introduced by means of trading partners from the frontier Jivaro, who in turn had adopted them from the missionaries and Ecuadorian settlers. None of the aboriginal native crops has been abandoned within the memory of the informants.

[462] The sexual division of labor in agricultural activities is unchanged except for the relatively inconsequential harvesting of the small plantings of red pepper and sugar cane. Formerly, both sexes engaged in harvesting these, whereas now only
178 women do. The decline of male interest in harvesting sugar
278 cane seems to be due to the fact that since the adoption of
411 firearms, blowguns and poisoned darts are rarely used any
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34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9

more in defending houses against attack. Sugar cane was the chief antidote against the curare dart poison, and men going on a killing expedition would carry some to suck on if hit by a dart.

Despite the efficiency of the steel tools and their increased supply, the quantity and quality of the artifacts produced through their use does not seem to have particularly changed. In other aspects of work, the machete has replaced the aboriginal bamboo knife for skinning animals and cutting meat, and has almost entirely taken the place of the palm-wood "machete" in clearing gardens of weeds. Steel needles obtained from the West have partially replaced bone ones for sewing and boring. The traditional bone needles, because of their large size, are still preferred for some tasks, espetially the making of netted bags. A new minor craft is the fashioning of powder horns from unworked cow horns obtained from trading partners in the west, who secure them from the whites.

The preparation of animal skins for trade has increased considerably in order to acquire steel tools, shotguns, and gunpowder from the frontier Jivaro trading partners. Cordage manufacture remains unchanged, but the local production of knotted and knotless netting bags is a new development, learned from the Achuara tribe as a result of the increased peaceful contacts by trading partners.

Western-manufactured clothing, along with trade cloth and glass beads, has been adopted gradually by men and women as a result of the development of the trading partnership system. The increased trade has also resulted in the acquisition of Achuara-woven cotton kilts. The acquisition of both Western and Achuara items of dress has greatly contributed to a decline in the home weaving of garments by Jivaro. Bark clothing, viewed as a sign of poverty, has be-